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DYNAMICS OF CAPITAL MARKET VOLATILITY IN INDIA

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ABSTRACT

In last few decades, the World Economy has witnessed a number of crises; but the most recent economic slowdown that originated from US sub-prime lending, has created a great deal of turbulence and worry in the capital markets of emerging economies. Financial institutions and other companies around the world have been affected by volatility in share and property markets, and it reveals that the stock price volatility can undermine financial as well as real sector stability. In this context, this paper is an empirical attempt to study the volatility of India's capital market in the pre- and post-recession era. The study examines the behaviour of time varying volatility of India's capital market using S & P CNX Nifty based daily stock returns for the sample period spanning from March 2007 to March 2010. The application of Threshold GARCH and Component GARCH models concludes the persistence of time varying volatility, its asymmetric effect, and low transitory stock return volatility in the India's capital market. Such empirical evidence keeps much relevance to policy makers and regulators of India in devising prudential norms and implementing warranted policy reforms.

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INTRODUCTION

In recent years the study of capital market volatility has attracted the attention of economists, researchers, academicians, market analysts and policy makers, especially in the aftermath of global economic recession. The global economic slowdown, the US real estate decline, the credit and confident crises are all responsible for the turbulence and worries created in the mature and emerging capital markets across the globe. This turmoil in capital market reveals that the stock price volatility can undermine the financial as well as real sector stability in a country.

Stock market volatility, a barometer of uncertainty or risk, measures the size and frequency of fluctuations in a broad stock market price index. The term 'volatility' is often described as the

rate and magnitude of changes in prices and in finance often referred to as risk. Usually, volatility is gauged by the standard deviation of price changes at fixed intervals in a given period. That is, volatility is low if price changes are clustered near their mean, and is high if price changes are widely dispersed.

The volatility of mature and emerging stock markets has been studied comprehensively since the 1987 stock market crash, and in particular, in the aftermath of East Asian financial crisis. The extant of literature provides the evidence of a number of studies concerning the volatility of mature capital markets and only a few relating to the emerging markets like India, especially including the period of recent global economic slowdown.

Deb, Vuyyuri and Roy (2003) examine the monthly volatility of market indices (Sensex & S&PCNX-Nifty) of Indian capital market using eight different univariate models. Out-of-sample forecasting performance of these models has been evaluated using different symmetric, as well as asymmetric loss functions. The GARCH (1, 1) model has been found to be the overall superior model based on most of the symmetric loss functions, though ARCH has been found to be better than the other models for investors who are more concerned about under predictions than over predictions.

Raju and Karande (2003) study price discovery and volatility in the context of introduction of Nifty futures at the National Stock Exchange (NSE) in June 2000. Co-integration and GARCH techniques are used to study price discovery and volatility respectively. The major findings are that the futures market (and not the spot market) responds to deviations from equilibrium; price discovery occurs in both the futures and the spot market, especially in the latter half of the study period. The results also show that volatility in the spot market has come down after the introduction of stock index futures.

Batra (2004) examines the economic significance of changes in the pattern of stock market volatility in India during 1979-2003. The analysis reveals that the period around the BOP crisis and the initiation of economic reforms in India is the most volatile period in the stock market.

Seth and Saloni (2005) examine the volatility of common stock from the period 1980 to 2003. The study concludes that the stock market returns follow a deterministic path implying that stock returns oscillate between excess and under return, passing through the mean stock return. Hence the acceptable limits of volatility for the decision making of investors, depending on the type of investors can be made.

Padhi (2005) explains the stock market volatility at the individual script level and at the aggregate indices level. The empirical analysis has been done by using ARCH, GARCH model and ARCH in Mean model and it is based on daily data for the time period from January 1990 to November 2004. The analysis reveals the same trend of volatility in the case of aggregate indices and five different sectors such as electrical, machinery, mining, non-metallic and power plant sector. The GARCH (1, 1) model is persistent for all the five aggregate indices and individual company.

Karmakar (2006) measures the volatility of daily stock return in the Indian stock market over the period of 1961 to 2005. Using GARCH model he found strong evidence of time varying volatility. He also used the TARCH model to test the asymmetric volatility effect and the result suggests the asymmetry in volatility.

Rao, Kanagaraj and Tripathy (2008) attempt to determine the impact of individual stock futures on the underlying stock market volatility in India by applying both GARCH and ARCH model for a period of seven years from June 1999 to July 2006. This study includes stock of 10 companies i.e Reliance, SBI, TISCO, ACC, MTNL, TATA Power, TATA Tea, BHEL, MAHINDRA & MAHINDRA and ITC. The results suggest that stock future derivatives are not responsible for increase or decrease in spot market volatility and conclude that there could be other market factors that have helped the increase in Nifty volatility.

Mahajan and Singh (2008) examine the empirical relationship between return, volume, and volatility in Indian stock market using GARCH (1, 1) and EGARCH (1, 1) estimated for Nifty index.

Rao and Tripathy (2008) examine the volatility of Nifty to understand the behaviour of Indian stock market. This study explores the daily nifty movements as well as wide range of economic events from 1991 to 2008 and the results show that the stock market volatility was highest during some years. This volatility is studied further in detail to find the logical reasons for the excessive or under returns on the specific day for the market. The study concludes that the market would react very sharply to economic, political and policy issues.

As is evident from the review of literature, the issue of changes in volatility of stock returns in emerging markets has received considerable attention in recent years. The reason for this enormous interest is that volatility is used as a measure of risk. The market participants also need this measure for several reasons. It is needed as an input in portfolio management. It is indispensable in the pricing of options. Furthermore, in the process of predicting asset return

series and forecasting confidence intervals, the use of volatility measure is crucial. Campbell *et al* (2001) finds that stock market volatility has significant forecasting power for real gross domestic product (GDP) growth. These results are not a surprise. When volatility increases, investors require a higher risk premium to hold stocks. As a result, stock prices fall and the cost of capital rises, which in turn reduces investment and output.

It is inferred that the literature is very thin in respect of the volatility studies taking into account the pre- and post-recession era. Thus, this paper is an attempt to study the attributes and implications of time varying volatility in the context of India's capital market for the period from January 2007 to October 2010. It is with this objective, the paper is organised as follows: Section 2 outlines the data and methodology of research, Section 3 makes the analysis, and Section 4 concludes.

DATA AND METHODOLOGY

The very objective of the study is to examine the time varying properties of capital market volatility in the context of Indian economy covering the pre- and post recession period that spans from January 2007 to October 2010. The study uses the adjusted daily closing S&P CNX Nifty[1] index values to calculate the daily stock returns so as to facilitate the volatility study. The data for the sample period collected from the Yahoo Finance. The econometric estimations of the GARCH class models have been performed to cater to the needs of the study.

RESULTS AND DISCUSSION

At the outset, for volatility modelling, the daily closing values of the CNX Nifty are used to arrive at the daily stock return data ignoring the days when there was no trading. The price changes are calculated from the last day the market was open. Daily stock returns (R_t) are calculated by the log difference change in the price index: $R_t = \log\left(\dfrac{I_t}{I_{t-1}}\right)$ where R_t is the daily stock return at time 't' and I_t and I_{t-1} are the closing values of the Nifty at time 't' and 't-1' respectively.

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[1] *Adjusted Closing index is the closing Nifty adjusted for dividends and stock splits.*

Then, to facilitate the volatility estimation, the GARCH (1, 1) model[2] is used. The model for daily stock return is specified as under:

$$\text{Mean Equation: } R_t = c + \varepsilon_t$$

$$\text{Variance Equation: } \sigma_t^2 = \omega + \alpha_1 \varepsilon_{t-1}^2 + \beta_1 \sigma_{t-1}^2$$

Since σ_t^2 is the one-period ahead forecast variance based on past information, it is called the *conditional variance*. The above specified conditional variance equation is a function of three terms: a constant term (ω), news about volatility from the previous period, measured as the lag of the squared residual from the mean equation (ε_{t-1}^2), and the last period's forecast variance (σ_{t-1}^2). The GARCH (1, 1) model assumes that the effect of a return shock on current volatility declines geometrically over time. This model is consistent with the volatility clustering where large changes in stock returns are likely to be followed by further large changes.

TABLE-1: GARCH (1, 1) ESTIMATES OF DAILY STOCK RETURNS

	Coefficient	Std. Error	z-Statistic	Prob.
C	0.001134	0.000564	2.008445	0.0446
Variance Equation				
ω	1.09E-05	1.76E-06	6.166393	0.0000
α_1	0.126903	0.016823	7.543225	0.0000
β_1	0.856777	0.017369	49.32766	0.0000

It is clear that the bulk of the information comes from the previous days forecast (around 85%). The new information changes this a little and the long run average variance has a very small effect.

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[2] The GARCH model was introduced by Bollerslev (1986).

FIG. 1: S & P CNX NIFTY BASED DAILY STOCK RETURNS

CNX NIFTY ADJUSTED CLOSING INDEX FROM JANUARY 2007 TO OCTOBER 2010

NIFTY BASED DAILY STOCK RETURN FROM JANUARY 2007 TO OCTOBER 2010
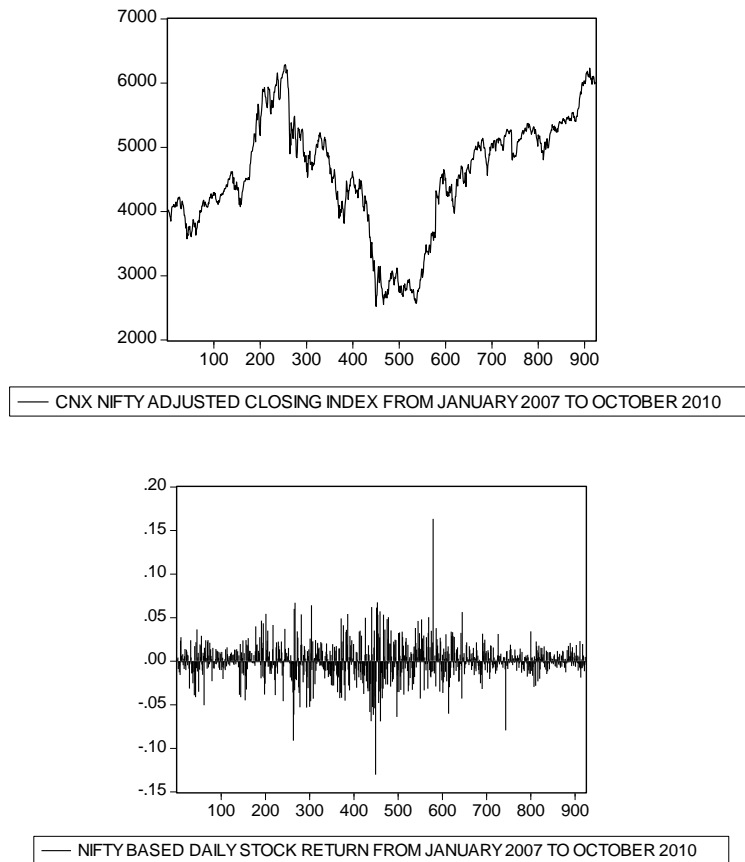
It is very apparent from Fig. 1 that the amplitude of the daily stock returns is changing. The magnitude of the changes is sometimes large and sometimes small. This is the effect that GARCH is designed to measure and that we call volatility clustering. There is another interesting feature in the Fig. 1 that the volatility is higher when prices are falling than when prices are rising. It means that the negative returns are more likely to be associated with greater volatility than positive returns. This is called asymmetric volatility effect.

The time varying stock return volatility as captured by GARCH (1, 1) model does not say about whether good news or bad news that increases volatility. This aspect of volatility modelling is captured by Threshold GRACH (TGARCH) model as developed independently by Glosten, Jaganathan, and Runkle (1993) and Zakoian (1994). The specification for conditional variance in Threshold GRACH (1, 1) model is:

$$\sigma_t^2 = \omega + (\alpha + \gamma I_{t-1})\varepsilon_{t-1}^2 + \beta \sigma_{t-1}^2$$

Here, the dummy variable I_{t-1} is an indicator for negative innovations and is defined by:

$I_{t-1}=1$, if $\varepsilon_{t-1}<0$ and $I_{t-1}=o$ if $\varepsilon_{t-1}\geq 0$. In this model, good news, $\varepsilon_{t-1}>0$, and bad news,

$\varepsilon_{t-1} < 0$, have differential effects on the conditional variance; good news has an impact of α, while bad news has an impact of $\alpha + \gamma$. If $\gamma > 0$, then bad news increases volatility, and we say that there is a leverage effect. If $\gamma \neq 0$, the news impact is asymmetric.

TABLE-2: T-GARCH (1, 1) ESTIMATES OF DAILY STOCK RETURNS

	Coefficient	Std. Error	z-Statistic	Prob.
C	0.000851	0.000548	1.554381	0.1201
Variance Equation				
ω	1.28E-05	1.86E-06	6.875364	0.0000
ARCH(1)	0.061936	0.016648	3.720458	0.0002
RESID(-1)^2*(RESID(-1)<0)	0.162304	0.032501	4.993777	0.0000
GARCH(-1)	0.838043	0.018936	44.25642	0.0000

It shows that the good news has an impact of 0.0619 magnitudes and the bad news has an impact of 0.0619+0.1623= 0.2242 magnitudes. Thus, it can be said that in the Indian stock markets, the bad news increases the return volatility substantially. In recent time, the bad news has been originated from US sub-prime crisis, economic failure of globally reputed financial institutions, and large scale selling of stocks by FIIs in Indian stock markets. All these have made the Indian stock market environment gloomy and investment scenario scary.

Another aspect of this study is the short-term and/or long-term behaviour of stock return volatility. Thus, this part investigates the volatility spill over effects of the US sub-prime crisis on the Indian stock markets using the Component GARCH (CGARCH) model, which is a restricted GARCH model of Engle and Lee (1993) designed to capture the long-term or short-term component of the global financial shock to the Indian stock markets. The component-GARCH model is stated below:

$$R_t = c + \varepsilon_t$$
$$\sigma_t^2 = q_t + \alpha(\varepsilon_{t-1}^2 - q_{t-1}) + \beta(\sigma_t^2 - q_{t-1})$$
$$q_t = \omega + \rho(q_{t-1} - \omega) + \phi(\varepsilon_{t-1}^2 - \sigma_{t-1}^2)$$

Here, σ_t^2 is the volatility, c is the mean of the process, and q_t is the permanent or trend component in the conditional variance that captures the idea of time-varying long-term volatility with the speed of mean reversion determined by ρ. Typically ρ is between 0.9 and 1, so q_t approach the unconditional variance very slowly. For $\rho = 1$, the long-term volatility

process is integrated. The forecasting error term ($\varepsilon_{t-1}^2 - \sigma_{t-1}^2$) is the zero-mean and serial uncorrelated, which drives the evolution of the permanent component. The difference between σ_t^2 and q_t represents the transitory component of the conditional variance that dies out with time. Thus, the long-run movement of asset return volatility is dominated by the current expectation of the permanent trend given $\alpha + \beta < 1$.

TABLE-3: C-GARCH (1, 1) ESTIMATES OF DAILY STOCK RETURNS

	Coefficient	Std. Error	z-Statistic	Prob.
C	0.001062	0.000560	1.897727	0.0577
	Variance Equation			
ω	0.000795	0.000337	2.362468	0.0182
ρ	0.988945	0.005222	189.3971	0.0000
ϕ	0.117987	0.018806	6.273985	0.0000
α	0.073758	0.037579	1.962749	0.0497
β	-0.260214	0.472240	-0.551020	0.5816

The results of component GARCH model are presented in Table-3. The variables in the transitory equation will have an impact on the short-run movements in volatility, while the variables in the permanent equation will affect the long-run level of volatility. The value of α (0.07375) indicates the positive significant initial impact of an event to the transitory component, and β (-0.2602) indicates the negative and significant degree of memory in the transitory component. The sum value of α and β (-0.1865) provides the persistence of transitory shocks. The higher value of ρ (0.9889) shows the trend persistence. High trend persistence, low transitory volatility, and slower mean reversion in the long-run are thus, represented.

CONCLUSION

This paper, therefore studied the volatility of Indian stock markets taking into account the National Stock Exchange as the role model. The study by employing GARCH, T-GARCH and C-GARCH models, provides the evidence of high persistence of time varying volatility, its asymmetric effects, and low transitory volatility due to crisis shock and leaves the

application of the result in the field of volatility forecasting as an issue for future study. This volatility behaviour of Indian capital market may be due to recent global financial slowdown that originated from US sub-prime crisis. The global financial meltdown gives useful lessons for the Indian economy. Financial reforms in India are warranted to protect the financial system from its own excesses and redirect it to seek profits in the real economy rather than in speculative activities. There is need to reduce procyclicality of the financial system through regulatory reforms.

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A STUDY OF SHAREHOLDERS' VALUE AND FINANCIAL VARIABLES OF GUJARAT PHARMA INDUSTRY: AN EMPIRICAL ANALYSIS

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ABSTRACT

Study of shareholders' value creation is significant to measure shareholders' wealth and source of corporate governance and thus to check whether the primary objectives to maximise profit and shareholders' wealth are achieved or not from the prespective of stakeholders. The present study is an attempt to measure the relationship between shareholders' value i.e. residual income measures (Economic Value Added and Value Added) and financial variables i.e. residual income components (Earning Before Interest and Tax and Earnings Before Interest, Tax, Depreciation and Amortization); traditional value measures (Earning Per Share and Price-Earning Ratio) and cash flow measures (Cash Flow from Operating Activities and Cash Flow from Investing Activities). The study found that EVA had positive relation with both the residual income components i.e. EBIT and EBITDA as well as both the traditional value measures i.e. EPS and P/E but only one of the cash flow measures i.e. CFO while negative relation with CFI. VA had positive relation with both the residual income components i.e. EBIT and EBITDA as well as both the traditional value measures i.e. EPS and P/E but only one of the cash flow measures i.e. CFO while negative relation with CFI.

KEY WORDS: cash flow measures, residual income measures, residual income components, shareholders' value, traditional value measures

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INTRODUCTION

Traditionally, measurement of accounting income was of central focus with a view to judging real value of the business. Shortcomings such as possibility of manipulation and focus on the quantity of profit have given rise to the concept of EVA (Stewart, 1991). EVA's connection with the stock's price for performance evaluation and indication whether the operating profit is sufficient for the cost of capital employed or not, makes it, simple yet significant tool for

performance evaluation. It is also significant tool to measure shareholders' wealth and source of corporate governance (Baginski et al., 2003) and thus to check whether the primary objectives to maximise profit and shareholders' wealth are achieved or not (Sakthivel, 2011) from the prespective of stakeholders (Abate et al., 2004). Though the concept of Value Added (VA) was originated in U.S.A., the companies in Europe have been using it with greater frequency because European countries have introduced value added tax in their fiscal system. The concept of value added is also becoming popular in India due to introduction of value added tax in recent past.

Bearing in mind the substance of EVA and VA, the present study is an attempt to measure the relationship between shareholders' value and financial variables. As far as shareholders' value is concerned, residual income measures have been considered and financial variables such as residual income components, traditional value measures and cash flow measures have been taken into account. EVA and Value Added VA have been taken as residual measures. Earning Before Interest and tax (EBIT) and Earning Before Interest, Tax, Depreciation and Amortization (EBITDA) as residual income components, Earning Per Share (EPS) and Price-Earning Ratio (P/E) as traditional value measures and Cash Flow from Operating Activities (CFO) and Cash Flow from Investing Activities (CFI) as cash flow measures have been taken for the study.

This study is organised as follows: the next section following the introduction discusses the literature review. The third section highlights the problem under investigation. Objectives are listed in the fourth section. The fifth section discusses study methodology. The sixth section provides details of the results and analysis of the available data and the final section presents conclusion.

LITERATURE REVIEW

EVA, REVA (Refined Economic Value Added) and MVA are better measures of business performance than NOPAT and EPS in terms of shareholders' value creation and competitive advantage of a firm because conventional management compensation systems emphasize sales / asset growth at expense of profitability and shareholders' value (Anand et al., 1999).

There was positive and high correlation between EVA and RONW, ROCE. There was a positive but low correlation between EVA and EPS and hence not a single traditional performance measure explains to the fullest extent variation in shareholder wealth (Malik, 2004).

By increasing EVA, Shareholder Wealth is created and established the fact that the EVA is superior to the Market Value Added (MVA) in ITC Limited (Panigrahi, 2005).

The traditional performance indicators are showing quite high values of ROCE and EPS growth as compared to EVACE in Cholamandalam Investment and Finance Co. Ltd. The traditional parameters indicated quite a rosy and healthy picture of the company during all five years of the stuffy (Bhayani, 2006).

Negative EVA for eight years consecutively was found in top 205 companies from BT-500 India's most valuable companies during 1995-96 to 2006-07 (Kaur & Narang, 2009).

Introducing EVA as a performance measure for pharmaceutical companies in Gujarat is an effective measure of the quality of managerial decisions as well as a reliable indicator of an enterprise's value growth in future (Bhatt & Mistry, 2010).

Firm's shareholders value creation is highly dependent on Operating expenses, Profit margin, ROCE and Expense ratio. The inter company and inter industry analysis results indicate that there is no positive impact of mergers on shareholder value creation (Chauhan & Bhayani, 2010).

There are no any uniform EVA trends in 10 selected companies of India for the period of 1998-99 to 2007-08 (Khatik & Singh, 2010).

Except few, majorities of the sample companies are able to continuously create value for their shareholders during the study period of 2001-02 to 2008-09 and EVA is gaining popularity in India as important measures of firm performance (Sharma & Kumar, 2010).

Capital Employed and Net Operating Profit after Tax have positive impact on next period's profit while Return on Assets has negative impact thereon (Mistry, 2011).

THE PROBLEM INVESTIGATED

From the above literature review, it is clear that there is an immediate need for a comprehensive and elaborate research to study the interrelationships and predictive power of the financial variables in determining shareholders' value in the Indian context. This gap in the literature is the primary and strong motivation for the present study. The present study is an attempt to cover traditional as well as contemporary measures used by pharma players in Gujarat for shareholders' value creation. Some important issues on which the research provides insight, thereafter, are:

1. What are the important variables that discriminate the companies creating value?
2. What are the interrelationships that exist among various measures used for shareholders' value creation?

OBJECTIVES OF THE STUDY

The present study has been carried out with the objectives:

1. To compute and analyze the shareholders' value i.e. residual income measures (Economic Value Added and Value Added) and financial variables i.e. residual income components (Earning Before Interest and Tax and Earning Before Interest, Tax, Depreciation and Amortization); traditional value measures (Earning Per Share and Price-Earning Ratio) and cash flow measures (Cash Flow from Operating Activities and Cash Flow from Investing Activities).
2. To study whether there is significant difference between shareholders' value and financial variables of the selected players during the study period or not.
3. To study whether there is relationship between financial variables and EVA or not.
4. To study whether there is relationship between financial variables and VA or not.
5. To study whether Shareholders' value can be predicted by the selected financial variables or not.

STUDY METHODOLOGY

The sample of this study includes following four major pharma players in Gujarat selected on the basis of their performance, position and sales during the 2003-04 to 2009-10:

1. Alembic
2. Cadila
3. Sun
4. Torrent

The data for the accomplishment of the aforementioned research objectives used was secondary. With a view to analyzing the relationship between shareholders' value and financial variables, the data was gathered from financial statements as published in annual reports (2003-04 to 2009-10) of the selected pharma players in Gujarat. Besides, the review of different articles and research papers was another source of the data.

For the purpose of the study, relationship between shareholders' value and financial variables has been measured. As far as shareholders' value is concerned, residual income measures have been considered and financial variables such as residual income components, traditional value measures and cash flow measures have been taken into account. Residual income measures i.e. Economic Value Added (EVA) and Value Added (VA) have been taken as dependent variables; while residual income components i.e. Earning Before Interest and tax (EBIT) and Earning Before Interest, Tax, Depreciation and Amortization (EBITDA); traditional value measures i.e. Earning Per Share (EPS) and Price-Earning Ratio (P/E) and cash flow measures i.e. Cash Flow from Operating Activities (CFO) and Cash Flow from Investing Activities (CFI) have been taken as independent variables.

The following hypotheses have been laid down for the present study:

H_1 : there is no significant difference between shareholders' value and financial variables of the selected players during the study period.

H_2 : there is no relationship between financial variables and EVA.

H_3 : there is no relationship between financial variables and VA.

H_4 : Shareholders' value ($\mathbf{EVA} = a_{1.23456} + b_{12.3456}*VA + b_{13.2456}*EBIT + b_{14.2356}*EPS +$

$b_{15.2346}$*CFO + e and **VA** = $a_{1.23456}$+ $b_{12.3456}$*EVA + $b_{13.2456}$*EBIT + $b_{14.2356}$*EPS +

$b_{15.2346}$*CFO + e) can be predicted by the selected financial variables.

In order to examine and compare the relationship between shareholders' value and financial variables and to test the first hypothesis, technique of One Way Analysis of Variance. Techniques of Correlation Matrix have been applied to test second and third hypotheses. In order to study the impact of financial variables on shareholders' value and to test the fourth hypothesis, technique of regression has been applied.

RESULT AND ANALYSIS

Testing of Hypothesis 1

Table 1 One Way Analysis of Variance of Selected Variables between Selected Pharma Players in Gujarat				
Sources of Variation	Sum of Square	Degree of Freedom	Mean Square	F – Ratio
EVA				
Between Groups	837325.1	3	279108.4	9.857273
Within Groups	679559.2	24	28314.97	
VA				
Between Groups	1031392	3	343797.4	6.695083
Within Groups	1232417	24	51350.73	
EBIT				
Between Groups	1284152	3	428050.8	9.707209
Within Groups	1058308	24	44096.17	
EBITDA				
Between Groups	1340286	3	446762.1	9.304656
Within Groups	1152357	24	48014.89	
EPS				
Between Groups	1103.724	3	367.9079	2.857845*

Within Groups	3089.667	24	128.7361	
P/E Ratio				
Between Groups	537.2325	3	179.0775	1.078655*
Within Groups	3984.462	24	166.0192	
CFO				
Between Groups	761513.7	3	253837.9	6.515712
Within Groups	934987.5	24	38957.81	
CFI				
Between Groups	634939.8	3	211646.6	6.86892
Within Groups	739493	24	30812.21	
* indicates that null hypothesis is accepted at 5 % level of significance.				

Table 1 throws light on whether there is a significant difference in the selected variables among the selected pharma players or not. The findings based on ANOVA are presented therein. From the table, it follows that only for two variables i.e. EPS and P/E ratio, calculated value of 'F' is less than the table value of 'F' at 5% level of significance. This implies that for these two variables, there is no significant difference among the players. For all other variables, it is found that the computed value of 'F' is higher than the table value of 'F'. Hence null hypothesis is rejected. This indicates that the majority of the selected variables for the study differ significantly among selected pharma players.

Testing of hypothesis 2

Table 2 Correlation Matrix of EVA and Financial Variables							
	Residual Income Measure	Residual Income Components		Traditional Value Measures		Cash Flow measures	
	EVA	EBIT	EBITDA	EPS	P/E	CFO	CFI
EVA	1						
EBIT	0.996051	1					
EBITDA	0.999491	0.998012	1				
EPS	0.955648	0.974688	0.960055	1			

P/E	0.856761	0.86742	0.868398	0.788766	1		
CFO	0.978004	0.992451	0.982749	0.992127	0.85515	1	
CFI	-0.98688	-0.99655	-0.99144	-0.97486	-0.8953	-0.99505	1

Table 2 reveals that EVA had positive relation with both the residual income components i.e. EBIT and EBITDA as well as both the traditional value measures i.e. EPS and P/E but only one of the cash flow measures i.e. CFO while negative relation with CFI. As the degree of relationship was very high, the variables were significantly associated with the EVA. Therefore, null hypothesis is rejected.

Testing of Hypothesis 3

Table 3 Correlation Matrix of VA and Financial Variables							
	Residual Income Measure	Residual Income Components		Traditional Value Measures		Cash Flow measures	
	VA	EBIT	EBITDA	EPS	P/E	CFO	CFI
VA	1						
EBIT	0.827997	1					
EBITDA	0.861581	0.998012	1				
EPS	0.698688	0.974688	0.960055	1			
P/E	0.720397	0.86742	0.868398	0.788766	1		
CFO	0.753232	0.992451	0.982749	0.992127	0.85515	1	
CFI	-0.79448	-0.99655	-0.99144	-0.97486	-0.8953	-0.99505	1

Table 3 reveals that VA had positive relation with both the residual income components i.e. EBIT and EBITDA as well as both the traditional value measures i.e. EPS and P/E but only one of the cash flow measures i.e. CFO while negative relation with CFI. As the degree of relationship was very high, the variables were significantly associated with the VA. Therefore, null hypothesis is rejected.

Testing of Hypothesis 4

Table 4 Model I (Dependent Variable - EVA , Independent Variables – VA, EBIT, EPS and CFO)				
Alembic				
Group	DF	SS	MS	F
Regression	4	6591.359	1647.84	223.288
Residual	2	14.75977	7.379887	
Total	6	6606.119		
Adjusted R^2 = 0.993297				
EVA = -10.901+ (-0.05636*VA) + (1.085403*EBIT) + (0.450128*EPS)+(0.270261*CFO)				
Cadila				
Group	DF	SS	MS	F
Regression	4	36006.97	9001.743	314.5255
Residual	2	57.24014	28.62007	
Total	6	36064.21		
Adjusted R^2 = 0.995238				
EVA = 5.324013+ (0.073836*VA) + (0.793882*EBIT) + (1.704184*EPS)+(-0.04525*CFO)				
Sun				
Group	DF	SS	MS	F
Regression	4	615097.9	153774.5	725426.9766
Residual	2	0.423956	0.211978	
Total	6	615098.3		
Adjusted R^2 = 0.999998				
EVA = 33.2168+ (-0.27955*VA) + (0.950355*EBIT) + (0.478318*EPS)+(0.116733*CFO)				
Torrent				
Group	DF	SS	MS	F
Regression	4	21787.4	5446.85	3461.919
Residual	2	3.146723	1.573362	
Total	6	21790.55		
Adjusted R^2 = 0.999567				
EVA = 9.617788+ (0.117941*VA) + (0.766448*EBIT) + (0.094816*EPS)+(				

0.061217*CFO)
*indicates that null hypothesis is accepted.

Table 4 depicts multiple linear regression Model I from which it is clear that the model has a coefficient of determination of 0.993297, 0.995238, 0.999998 and 0.999567 which explains variation of 99.32%, 99.52%, 99.99% and 99.95% in EVA of Alembic, Cadila, Sun and Torrent respectively for the period of the study. Coefficient of VA suggests that 1 percent change therein leads to increase in EVA of Cadila and Torrent, while decrease in Alembic and Sun. Coefficients of EBIT and EPS suggest that 1 percent change therein lead to increase in EVA of all the players under the study. Coefficient of CFO suggests that 1 percent change therein leads to increase in EVA of all the players under the study except Cadila. As the calculated value of 'F' is more than the table value of 'F' at 5% significant level with four degrees of freedom in numerator and two degrees of freedom in denominator in all the selected players, null hypothesis is rejected.

Table 5 Model II (Dependent Variable - VA, Independent Variables – EVA, EBIT, EPS and CFO)				
Alembic				
Group	DF	SS	MS	F
Regression	4	28001.55	7000.388	4.893653*
Residual	2	2861.007	1430.503	
Total	6	30862.56		
Adjusted R^2 = 0.721895				
VA = -198.218+ (-10.9241*EVA) + (12.32726*EBIT) + (6.181609*EPS)+(4.190238*CFO)				
Cadila				
Group	DF	SS	MS	F
Regression	4	151365.8	37841.46	10.53024*
Residual	2	7187.198	3593.599	
Total	6	158553		
Adjusted R^2 = 0.86401				
VA = -37.0748+ (9.271027*EVA) + (-6.82098*EBIT) + (-15.0355*EPS)+(0.48531*CFO)				
Sun				

Group	DF	SS	MS	F
Regression	4	1015175	253793.8	93844.85
Residual	2	5.408795	2.704397	
Total	6	1015180		
Adjusted R^2 = 0.999984				
VA = 118.4996+ (-3.56653*EVA) + (3.391196*EBIT) + (1.699894*EPS)+(0.417998*CFO)				
Torrent				
Group	DF	SS	MS	F
Regression	4	27687.45	6921.863	103.3188
Residual	2	133.9903	66.99516	
Total	6	27821.44		
Adjusted R^2 = 0.985552				
VA =-25.777+ (5.022046*EVA) + (-3.29357*EBIT) + (-0.82325*EPS)+(-0.42003*CFO)				
*indicates that null hypothesis is accepted.				

Table 5 depicts multiple linear regression Model II from which it is clear that the model has a coefficient of determination of 0.721895, 0.86401, 0.999984 and 0.985552 which explains variation of 72.18%, 86.40%, 99.99% and 98.55% in VA of Alembic, Cadila, Sun and Torrent respectively for the period of the study. Coefficient of EVA suggests that 1 percent change therein leads to increase in VA of Cadila and Torrent, while decrease in Alembic and Sun. Coefficients of EBIT and EPS suggest that 1 percent change therein lead to increase in VA of Alembic and Sun, while decrease in Cadila and Torrent. Coefficient of CFO suggests that 1 percent change therein leads to increase in VA of all the players under the study except Torrent. As the calculated value of 'F' is more than the table value of 'F' at 5% significant level with four degrees of freedom in numerator and two degrees of freedom in denominator in Sun and Torrent, null hypothesis is rejected; while the calculated value of 'F' is less that the table value of 'F' at 5% significant level with four degrees of freedom in numerator and two degrees of freedom in denominator in Alembic and Cadila, null hypothesis is accepted.

CONCLUSION

From the study, it can be concluded that the majority of the selected variables for this study differ significantly among selected pharma players except in traditional value measures. It

can also be concluded that EVA had positive relation with both the residual income components i.e. EBIT and EBITDA as well as both the traditional value measures i.e. EPS and P/E but only one of the cash flow measures i.e. CFO while negative relation with CFI. As the degree of relationship was very high, the variables were significantly associated with the EVA. As far as VA is concerned, it can be concluded that VA had positive relation with both the residual income components i.e. EBIT and EBITDA as well as both the traditional value measures i.e. EPS and P/E but only one of the cash flow measures i.e. CFO while negative relation with CFI. As the degree of relationship was very high, the variables were significantly associated with the VA. It can be concluded that change in VA leads to increase in EVA of Cadila and Torrent, while decrease in Alembic and Sun. Change in EBIT and EPS lead to increase in EVA of all the players under the study, while change in CFO leads to increase in EVA of all the players under the study except Cadila. It can be concluded that change in EVA leads to increase in VA of Cadila and Torrent, while decrease in Alembic and Sun. Change in EBIT and EPS lead to increase in VA of Alembic and Sun, while decrease in Cadila and Torrent and change in CFO leads to increase in VA of all the players under the study except Torrent.

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INVESTMENT BEHAVIOR OF SOCIO ECONOMIC CLASS B

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ABSTRACT

This article is an effort to identify the investment instrument preferred by the investors & investment Behavior of the investor belonging to socio-economic class B. A structured schedule was executed on 44 investors from socio economic class B in Goa. The study attempts to relate the demographic profile of the sample and its investment pattern. Analysis is based on Chi-square. The study shows that behavioral trends of class B representatives is focused as this is the class that has to act for facing economical changes & will get maximum impacted, may be pushed either up or down based on their responses. So the study of this class is important. Goa is tourist destination & no Industrialization so this is a representative sample for urban and rural Indian middle class.

KEY WORDS: *Investors, demographics, behavior investment pattern, Chi-Square, socio economic.*

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INTRODUCTION:

Saving determines the rate at which productive capacity, and hence income, can grow. On Average, the more rapidly growing developing countries have had higher saving rate than the slower growing countries. These rates are influenced by many factors. In analyzing them it is useful to distinguish between the flow of "Saving" and the stock of "Saving" Saving will always refer to the flow of real resources that are not consumed in the period under study and that are therefore available for investment. The financial system intermediate only part of a country's total investment, because firms and households finance much of their investment directly out of their own saving. Only when investment exceeds saving is it necessary to borrow, just as when savings exceed investment it is necessary to lend. The financial system's task is to move excess savings into investment, thereby creating credit to facilitate economic development. (Vasant Desai 2006) Finance is the key to investment and hence to

growth. Providing saved resources to others with More productive uses for them raises the income of saver and borrower alike. Saving determines the rate at which productive capacity, and hence income, can grow. On average, the more rapidly growing developing countries have had higher saving rates than the slower growing countries. These rates are influenced by many factors, In analyzing them it is useful to distinguish between the flow of saving and the stock for savings. Saving will always refer to the flow of real resources that are not consumed in the period under study and that are therefore available for investment. Individual savings and investment pattern plays important role in any economy since it is a major component of resource market. People used to invest these savings in various avenues. The considerable variations are found in the available of investment avenues in pre liberalization and post liberalization period.(Vrushali Shah, Priyanka Zanvar, & Deshmukh 2010) The Investor has various alternative avenues of investment for his savings to flow in accordance with his preferences. Saving flow into investment for a return, but savings kept as cash are barren and do not earn anything. Saving are invested in asset depending on their risk and return characteristics. But a minimum amount of cash is always kept in hand for transactions and contingencies. Any rational investor knows that money is losing its value by the extent of the rise in prices. The study has been undertaken to analyze the investment behavior & pattern of investment community from the class B, who would get impacted maximum. The main reasons behind the study are the factors like income, economy condition, and the risk covering nature of the urban & semi urban investors who come under a Middle Class category. This project contains the investors' preferences and as well as the different factors that affect investors decision on the different investment avenues. The focus is middle class as it would be the most impacted one. Three distinct arguments about the special economic role of the middle class are traditionally made. In one, new entrepreneurs armed with a capacity & a tolerance for delayed gratification emerge from the middle class & create employment & productivity growth for the rest of society. In a second perhaps more conventional view, the middleclass is primarily a source. In a second, perhaps more conventional view, is primarily a source of vital inputs for the entrepreneurial class. It is their "middle class values" – their emphasis on the accumulation of human capital & savings that makes them central to the process of capitalist accumulation. The Third view, staples of the business press, emphasizes the middle class , whose demand for quality consumer goods feeds investment in production & marketing, which in turn raise income levels for everyone. (Banerjee,Abhijit V, Duflo, Esther 2008) Population of Goa is 14.57 lakh .Population of Goa has risen to 14,57,723 over the last 10 years, which is an increase of 8.17 per cent from

2001.Panjim Population is increase of 8.17 per cent from 2001. Total population of the state comprises 7,40,711 males & 7,17,012 females. The sex ratio for the costal state stands at 968 which were 961 in 2001. Approximately 11,52,117 people literate in Goa giving the literacy rate of 87.40% which is higher than national average male in the state is 92.81% . The literacy rate of (6,20,020) while for female it is 81.84% (5.32,091). The census figures put the national literacy rate at 74.04% in 2011. The target set by the planning commission to be achieved by 2011-12.

LITERATURE REVIEW:

Byrnes, Miller and Schafer 1999conducted a meta analysis of 150 studies comparing risk taking behaviors of men and women in a variety of domains (financial) & tasks. They found that men were taking more risks overall.

Car E. Uccello suggesting that workers with a guaranteed source of retirement income are more likely to invest their retirement asset more aggressively. Grey Gorden ,Pablo Guerron 2012 Investment manager assume that self employment status automatically leads to higher levels of risk taking , self employed individual are likely to choose riskier investments and accept increased investment volatility as compared to people who work for others for a straight salary. He found that women appeared to be more risk averse in all domains except social risk. Richard Giest 1999 has been researching the human psychology that drives individual investment decision. In this paper author focused on Recognizing and acknowledging that emotion are an integral part of investment decision making process. Recongnizing our unique emotional. Patterns and integrating them into an investment style that fits out personality. He mentioned that many investors today believes the way to succeed in the market is to understand and predict its behavior perfectly or to find the perfect trading system. Lee & Hanna, Riley and Chow, have found out a positive pattern between income and financial risk tolerance. Both the absolute income level and return requirements may Influence one's investment decisions. High levels of wealth and income should encourage risk tolerance because wealthy investors can tolerate some loss better than the less wealthy. Teck-Young Eng, Bogaert, Julie. 2010. The recent economic rise of the middle class with an increase in disposable income is leading to consumption of Luxury. Rajarajan V.2000 undertaken study with an objective to find out life style based segmentation of individual investor and analyze investment size, pattern and future investment preference on the basis of

life style. Study identifies three life study clusters i.e. Active Investors, Individualists and passive Investors. Study brought out the association between life style clusters and investment related characteristics. The said clusters has its demographic peculiarity and variations in investment related aspects viz. investment size, expected return, portfolio choice, risk bearing capacity, time perspective.

Beinhocker, Eric D. Farrwell, Diana, Zainudbhai, Adil S. (2007) this article reports on research into the growth patterns of India's consumer spending and emerging middle class. Author also reported that the growth that has pulled million of people out of poverty is also building a huge middle class that will be concentrated in Indian's urban areas & urban population will expand significantly, from 318 million today to 523 million in 2025. Along with the shift from rural to urban consumption, India will witness the rapid growth of its middle class – households with deposable incomes from 200000 to 1000000 rupee per year. That class now comprises about 50 smillion people roughtly 5% of the population. Muraleedharan D. (2008) In his study he presents level and pattern of income of the households among different income groups. This paper also analyses the pattern of investment preference among the different income groups in physical & financial assets. In this study household are graded into three major income group as low, middle & high. The variation in the level and pattern of rural urban income distribution on household saving also play a decisive influence in the behavior of household savings. The significance of the locational factor in the level of saving and investment is also found statistically significant in the study.

Ippolito (1992) and Bogle(1992) have reported that fund selection by investors is based on past Performance of the funds and many flows into winning funds. Harlow & Brown (1990) found that women tend to take less likely to invest in riskier but high return assets than men(McDonal,1997) Recent studies yield that males and females are equally Successful in taking decision under condition of risk (Charness & Gneezy,2004) Chan & Lakonishok(1995) find that less patient asset managers with higher turnover rates incur larger price impacts. The traditional explanations for the volume-volatility relation are a mixture of the distribution hypothesis (Epps and Epps, 1976 and Harris, 1986) asymmetric information. (Admati and Pfleider, 1988) and differences in opinion (Varian, 1985: Harris and Raviv, 1993.Achim Machauer, Sebastian Morgne.(2001) in his study segmentation by demographic factors is widely used in base of marketing. Despite fact that the correlation of such factors with the needs of customers is often weak. Segmentation by expected benefit and attitudes

could enhance a banks ability to address the conflict between individual service and cost-saving standardization using cluster analysis segments were framed based on combinations of customer ratings for different attitudinal dimensions & benefits of bank services.

RESEARCH METHODOLOGY:

The Following paragraphs describe the research methodology adopted for the study-

Type of Research:

Looking at the objectives it was evident that the author wanted to conduct fact finding enquiries and describe the state of affairs as it exists at present. In the present study, author attempted to relate fact about Pattern of Investment Avenues. This involved collection of data and creation of a distribution of the number of times the researcher observes an event. Hence the research was descriptive research.

Data Collection:

Primary data was collected from various financial institutions & banks in Pune.

Sampling Technique:

The sample for the study composed from banks & financial institution in Pune. The author approached Financial intuition , Bank, Security houses.

Sample:

The sample included Government employee, Professionals, Businessman's in each gender .

Sample Size:

The sample size is 44.

The present research in inferential descriptive in nature and is set to test of following Hypotheses.

HYPOTHESES:

H_0 - The investor with similar demographic profile does not have similar investment pattern. The demographic profile includes age, sex, occupation, income and educational qualification.

OBJECTIVES OF STUDY:

The research was conducted with the following objectives-

1. To study the demographic profile of sample investors.
2. To study the investment pattern of Economic class B Investor.

SCOPE OF THE STUDY:

The study aims to review the investment pattern of middle class.

LIMITATIONS OF THE STUDY:

The following are the limitations of the Study;

1. The Study is at a micro level which cover only pune a reprehensive sample of rural & urban India .
2. We did not cover the jewelry shops on special occasion (gurupushpanmrut) as it does not add value to economic development and is for security and cosmetic value..

STATISTICAL TOOL USED FOR ANALYSIS:

Chi Square is used as a statistical tool by using SPSS package. Data of respondents was collected on decided investment avenues. The data is analyzed in relation to income group, gender of respondents, educational qualifications, occupation and age. Chi Square tests for statistical used to check the significance of association between two variables The variables may be nominal level or higher, but it is best suited for discrete variables with limited categories. Strictly speaking, Chi-square shows association between the variable. It gives us the measure of strength of the output. It the values less than 0.05, there is no significance between two . However, it the value ranges between 0.05 and 1, there exists a strong association.

ANALYSIS & INTERPRETATION OF DATA:

The results of the analysis of the collected data are presented below.

Table 1: Demographical Classification of Investors

Parameter	Number of Investors	Percentage
Gender		
Male	40	90
Female	4	10
Total	44	100
Age (in years)		
18 to 30 years	12	27
31 to 45 years	18	41
46 to 55 years	8	18
56 & above	6	14
Total	44	100
Educational Qualification		
Graduate	15	34
Post graduate	29	66
Income		
200000 - 300000	13	30
300000 - 500000	10	22
500000 - 10,00000	21	48
Total	44	100

Table 2: Investment Avenues

Sr No	Investment	Yes	No	Total
		Frequencies		
1	Public Provident Fund	9	35	44
2	Fixed Deposit	14	27	44
3	Mutual Fund	18	26	44
4	real estate	18	26	44
5	Gold ETF	9	35	44
6	LIC	17	27	44

STATISTICS

Figure 2 shows investment avenues of the sample investors. Sample investor prefer fixed deposit, Mutual Fund, real estate & LIC . Investor normally like to invest in less risky Investment. But study shows that investor in these day are not preferring PPF & Gold ETF . Especially age group 18 to 30 yrs are investing less in PPF & Gold. & 40% people prefer Mutual fund Real estate & LIC as investment.

Table 3: Period of Investment

Term	Frequency	Percent	Valid Percent	Cumulative Percent
Short term(0-5yrs)	23	52.3	52.3	52.3
Long term (5 yrs & above)	15	34.1	34.1	86.4
Both	5	11.4	11.4	97.7
None	1	2.3	2.3	100.0
Total	44	100.0	100.0	

The above table shows 52.3% investor are invest in short term Investment whereas 34.1% Investor said they invest in Long term Investment.5% Investor would like to invest in Both type of investment Short term & long term. whereas 1% say none.

Table 4 : Gender & Investment Avenues

Sr. No.	Investment	Chi-Square	Df	Asymp. Sig.
1	PPF	3.727	1	.054
2	Gold ETF	3.727	1	.054
3	Mutual Fund	1.689	1	.194
4	LIC	8.530	2	.014
5	Real Estate	1.689	1	.194
6	Fixed Deposit	8.530	2	.014

*S- Significant at 0.05 level   NS-No significant

(reject the null hypothesis when P value is less than Alpha value)

Figure 4 According to the analysis the probability of the chi-square test statistics (PPF=3.727,Gold ETF=3.727, Mutual Fund= 1.689, Real Estate = 1.689) were P=0 .054, 0.054, 0.194, .014, 0.194, 0.014 Which are greater than alpha level of significance of 0.05. Hence we conclude that there is significance dissociation between demographic profiles & investment pattern.

Table 5: Income Group & Investment Avenues

Sr. No.	Investment	Chi-Square	Df	Asymp.Sigs
1	PPF	4.823	3	.185
2	Gold ETF	.251	1	.141
3	Mutual Fund	1.724	3	.632

4	LIC	.398	2	.129
5	Real Estate	16.547	3	.001
6	Fixed Deposit	8.734	6	.189

*S- Significant at 0.05 level   NS-No significant

  (Reject the null hypothesis when P value is less than Alpha value

Above table no. 5 as per analysis the probability of the chi-Square test statistics (PPF= 4.823, Gold ETF= .251, Mutual Fund = 1.724,LIC = .398, Fixed Deposit = 8.734) were P= .185,.141,.632,.129,.189) respectively, which are greater than alpha level of significance of 0.05. However, the probability of chi-square statistic (Real Estate =16.547) P= .001 which is Less than the alpha level of significance of 0.05 Thus, the null hypothesis, similar demographic profile does not have similar investment pattern is accepted. It is conclude that investment pattern between every income group is different shows that the change in income of investor leads to change in investment pattern preferences.

Table 6: Occupation & Investment Avenues

	Value	Df.	Asymp. Sig (2-sided)	S/NS
Pearson Chi-square	28.831	9	.001	S

*S- Significant at 0.05 level   NS-No significant

  (Reject the null hypothesis when P value is less than Alpha value

Table shows Occupation of Investment Avenues is 28.831 P= .001 which is less than alpha level of significance of 0.05. however null hypothesis is accepted.

Table7: Age & Investment Avenues

Sr. No.	Investment	Chi-Square	Df	Asymp.Sig	S/NS
1	PPF	1.634	3	.652	NS
2	Gold ETF	8.779	3	.032	NS
3	Mutual Fund	3.499	3	.321	NS
4	LIC	4.480	3	.214	NS
5	Real Estate	.591	3	.899	NS
6	Fixed Deposit	5.373	6	.497	NS

*S- Significant at 0.05 level   NS-No significant-

   (Reject the null hypothesis when P value is less than Alpha value)

From the Table 7 of chi-square test reveal Null hypothesis is rejected , hence null hypothesis
States no relation between demographic profile & investment pattern.

FINDINGS OF THE STUDY:

1. Occupation wise Investor change investment pattern.

2. Income wise real Investments is most preferred investment & here investor found differences.

3. Investor prefer short term investment & that is the reason result shows that investor are not preferring PPF these days.

4. Researcher found differences in investment pattern when analyzed on the basis of These days investor expects fast return & they are keen about the saving.

5. Majority of Sample investor in socio economic class B themselves decide about Investment & do not rely on others.

6. Investor found differences in Investment pattern when analyzed on the basis of Income.

CONCLUSION:

This study require total understanding on Investment Industry & also a behavior of Investors. This study has made an attempt to understand the investment pattern of respondents in socio Economic class B , Hypothesis in this regard were framed and tested to arrive at the conclusions. The study of demographic characteristics of the investor is very necessary to segment the investment industry. Based on this study the trigger for apt response for middle class is set. This study found that demographic profile affected by Investment Pattern.

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ANALYSIS OF NPA IN SELECTED COMMERCIAL BANKS IN INDIA

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ABSTRACT

The banking in India is facing a serious problem of NPA. Non-Performing Assets are popularly known as NPA. The assets which do not generate any periodical incomes are called as Non-Performing Assets (NPA). A loan or lease that is not meeting its stated principal and interest payments, banks usually classify as Non Performing Assets any commercial loans which are more than 90 days overdue. This paper has attempted to examine and compare the NPA of Selected Commercial Banks in India. This analysis was based on the following objectives, To Study NPA and its impact on Banks Profitability, to compare all banking sectors NPA, to offer suggestions to reduce banks NPA.

KEYWORDS : NPA, Commercial Banks

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INTRODUCTION

The banking in India is facing a serious problem of NPA. A loan or lease that is not meeting its stated principal and interest payments, banks usually classify as Non Performing Assets any commercial loans which are more than 90 days overdue. In generally an asset which is not producing income. Non Performing Asset means an asset or account of borrower, which has been classified by a bank or financial institution as sub-standard, doubtful or loss asset, in accordance with the directions or guidelines relating to asset classification issued by RBI. The extent of NPA is comparatively higher in Public Sectors banks. To improve the efficiency and profitability, the NPA has to be scheduled. Various steps have been taken by government to reduce the NPA. It is highly impossible to have zero percentage of NPA, but at least Indian banks can try competing with foreign banks to maintain international standard.

SARFAESI ACT

It is aimed at discouraging defaulters to postpone repayment of their dues and enable banks to speedily recover their debts. It also stipulates certain restrictions if the secured creditors representing three-fourths in value of the amount outstanding against financial assistance disbursed to the borrower have taken measures to recover their secured debt. It enabled banks and financial institutions to realize long-term assets, manage problems of liquidity, asset liability mismatch and improve recovery by exercising powers to take possession of securities, sell them and reduce non-performing assets by adopting measures for recovery or reconstruction.

NON-PERFORMING ASSETS (NPA) - MEANING

Non-Performing Assets are popularly known as NPA. The assets which do not generate any periodical incomes are called as Non-Performing Assets (NPA)**.** If the customers do not repay principal amount and interest for a certain period of time then such loans become non-performing assets In India, the time frame given for classifying the asset as NPA is 180 days as compared to 45 days to 90 days of international norms.

TYPES OF NPA

NPA have been divided or classified into following four types:-

1. **Standard Assets**: A standard asset is a performing asset. Standard assets generate continuous income and repayments as and when they fall due. Such assets carry a normal risk and are not NPA in the real sense. So, no special provisions are required for Standard Assets.

2. **Sub-Standard Assets**: All those (loans and advances) which are considered as non-performing for a period of 12 months are called as Sub-Standard assets.

3. **Doubtful Assets**: All the assets which are considered as non-performing for period of more than 12 months are called as Doubtful Assets.

4. **Loss Assets**: All the assets which cannot be recovered are called as Loss Assets. These all assets can be identified by the Central Bank or by the Auditors.

NON-PERFORMING ASSETS (NPA)

With a view to moving towards international best practices and to ensure greater transparency, it has been decided to adopt the '90 days' overdue' norm for identification of NPAs, from the year ending March 31, 2004. Accordingly, with effect from March 31, 2004, a non-performing asset (NPA) shall be a loan or an advance where;

- Interest and/or installment of principal remain overdue for a period of more than 90 days in respect of a term loan,
- The account remains' out of order' for a period of more than 90 days, in respect of an Overdraft/Cash Credit (OD/CC),
- The bill remains overdue for a period of more than 90 days in the case of bills purchased and discounted,
- Interest and/or installment of principal remains overdue for two harvest seasons but for a period not exceeding two half years in the case of an advance granted for agricultural purposes.
- Any amount to be received remains overdue for a period of more than 90 days in respect of other accounts.

CAUSES OF NPA

NPA arises due to a number of factors or causes like:-

1. **Speculation**: Investing in high risk assets to earn high income.
2. **Default**: Willful default by the borrowers.
3. **Fraudulent practices**: Fraudulent Practices like advancing loans to ineligible persons, advances without security or references, etc.
4. **Diversion of funds**: Most of the funds are diverted for unnecessary expansion and diversion of business.
5. **Internal reasons**: Many internal reasons like inefficient management, inappropriate technology, labour problems, marketing failure, etc. resulting in poor performance of the companies.
6. **External reasons**: External reasons like a recession in the economy, infrastructural problems, price rise, delay in release of sanctioned limits by banks, delays in settlements of payments by government, natural calamities, etc.

REVIEW OF LITERATURE:

The review of the previously conducted studies, it is clear NPA is very important for the banks.

The work made by Nettime and Kurubaq, (2000) on "Reforming Banking and Financial Sector in the Context of Economic Restructuring ", observed that the pace of reforms in banking sector in India is definitely encouraging and giving positive signals of structural changes in the financial sector. However, it was opined that the reforms would be successful only if the level of NPAs is reduced. In order to tackle the problem of NPAs there is need for legal reforms. It was the attitude and efficiency of the banking authorities, which have to go a long way in making the banking reforms operationally and functionally effective.

Rajaraman *et al.,* (1999) in their study on "NPA Variations across Indian Commercial Banks, some Findings", explains inter-bank variations in net non-performing assets (NPA) for the year 1996-97. The study was performed by a specification that included intercept dummies by ownership category, bank-specific prudential and efficiency indicators, and region of operation as measured by percentage branches in each of the set of state clusters. The analysis revealed that the foreign banks of Asian and West-Asian origin performed no better than domestic private sector banks in terms of NPAs. The findings show that the banks' specific characteristics, such as ownership or adherence to prudential norms, do not suffice to explain inter-bank variations in NPAs. It was concluded that the sustainable reforms in the financial sector and improvement in the performing efficiency of the domestic banks are very essential.

Satyanarayana, (1997) in his study on "Feasible NPA Levels of Banks for Capital Account Convertibility" discusses the feasible non-performing asset (NPA) levels of banks for Capital Account Convertibility. He has observed that Public Sector banks in India may not be able to bring down their gross non-performance assets to 5 per cent as prescribed by Tarapore Committee on Capital Account Convertibility. It is argued that the prescribed level of 5 per cent of non-performance assets defies the market logic on the one hand and ignores the limitations of working in very slow, and very ineffective legal social and political climate of recovery on the other. It is observed, that whereas the strong banks exhibit confidence exhibit confidence, moving towards internationally competitive levels of capital adequacy, profitability and adequate coverage of non-performance assets, the position of weak banks is precarious in this regard.

OBJECTIVES

- To Study NPA and its impact on Banks Profitability
- To compare all banking sectors NPA.
- To Offer suggestions to reduce banks NPA.

RESEARCH METHODOLOGY

This study has evaluating the Non Performing Assets for all Sector Banks in India, from the year 2000-2001 to 2009-2010 for 10 years.

- **Sources of Data**

To accomplish the objectives of the Study, Primary and Secondary data were used. Primary data were collected from banks and secondary data has been collected from bank records, published and unpublished financial reports, journals, magazines, and websites.

- **Data Analysis**

The Performance analysis of New Private Sector Banks in India were analyzed for the period of ten years from 2000-2001 to 2009-2010, with the help of the following tools and techniques.

- **Tools Used**

    (1) Ratio

    (2) Mean

    (3) Standard Deviation

    (4) Co–efficient of Variation.

ANALYSIS AND RESULTS:

Table 1 - SBI Group of Banks – Ratio on Net Profit to Net NPA (in %)

S.No	Banks Name	Mean	Standard Deviation	Co-efficient of variation
1	SBBJ	122.60	74.09	60.43
2	SBH	55.57	27.62	49.71
3	SBI	70.28	25.23	35.90
4	SBM	176.76	131.09	74.17
5	SBP	128.90	66.85	51.86
6	SBT	123.86	91.52	73.89

From the table 1 it is understood that, the Net Profit to Net NPA across the various banks in SBI groups for various years, the Mean ratio was minimum 55.57 percent for SBH and maximum 176.76 percent for SBM. It also is inferred that SBM has the best performance out of the six banks taken for the study. The standard deviation of Net Profit to Net NPA for selected banks ranges between 25.23 and 131.09 percent. The lowest standard deviation found in SBI, which indicates low variation in the Net Profit to Net NPA and the high standard deviation found in SBM. It shows high variation in Net Profit to Net NPA. The co-efficient of variation ranges between 35.90 and 74.17 percent. The minimum co-efficient of variation was for SBI and this bank has more consistency in the performance over the period of 10 years, compared to other group of state banks.
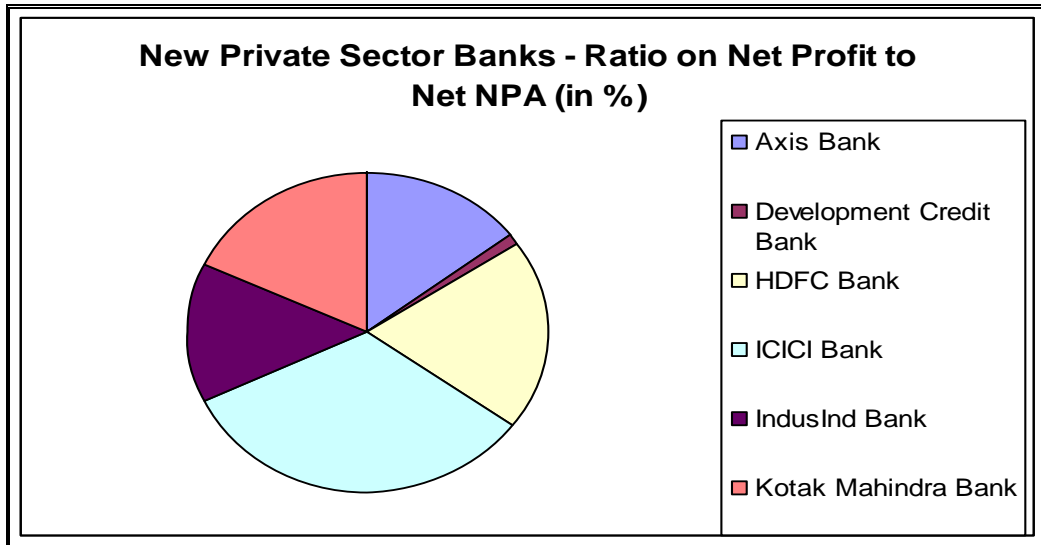
Chart – 1 - SBI Group of Banks – Ratio on Net Profit to Net NPA
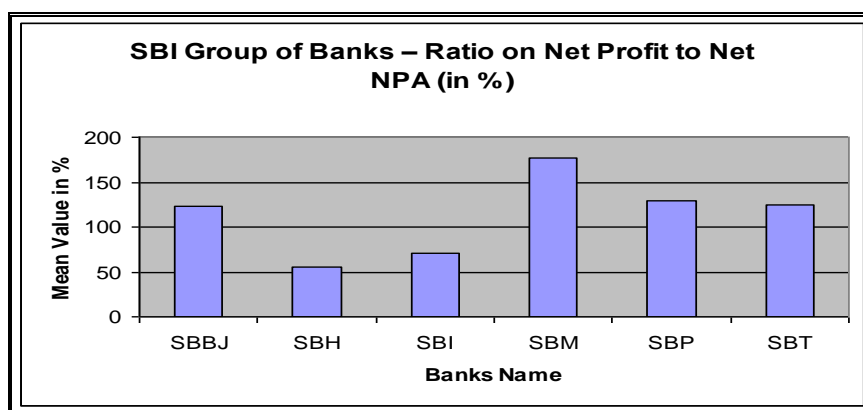
Table 2: New Private Sector Banks - Ratio on Net Profit to Net NPA (in %)

S.No	Banks Name	Mean	Standard Deviation	Co-efficient of variation
1	Axis Bank	68.81	20.80	30.24
2	Development Credit Bank	4.47	83.50	186.92
3	HDFC Bank	89.58	30.10	33.60
4	ICICI Bank	152.19	87.87	57.73
5	IndusInd Bank	64.89	27.08	41.73
6	Kotak Mahindra Bank	84.09	35.07	41.70

From the table 2 it is found that, the Net Profit to Net NPA Ratio across the various banks in New Private Sector Banks for various years, mean ratio was minimum for Development Credit Bank 4.47 percent and maximum 152.19 percent ICICI. It is observed that ICICI Bank has the best performance out of six banks taken for the study. The standard deviation of Net Profit to Net NPA for selected banks ranges between 20.80 and 87.87 percent. The lowest standard deviation found in Axis Bank, which indicates low variation in the Net Profit to Net NPA and the high standard deviation found in ICICI Bank, it shows high variation in Net Profit to Net NPA. The co-efficient of variation ranges between 30.24 and 186.92 percent. Since minimum co-efficient of variation was for Axis Bank, it shows that Axis Bank has more consistency in the performance over the study period of 10 years, compared to other New Private Sector Banks.

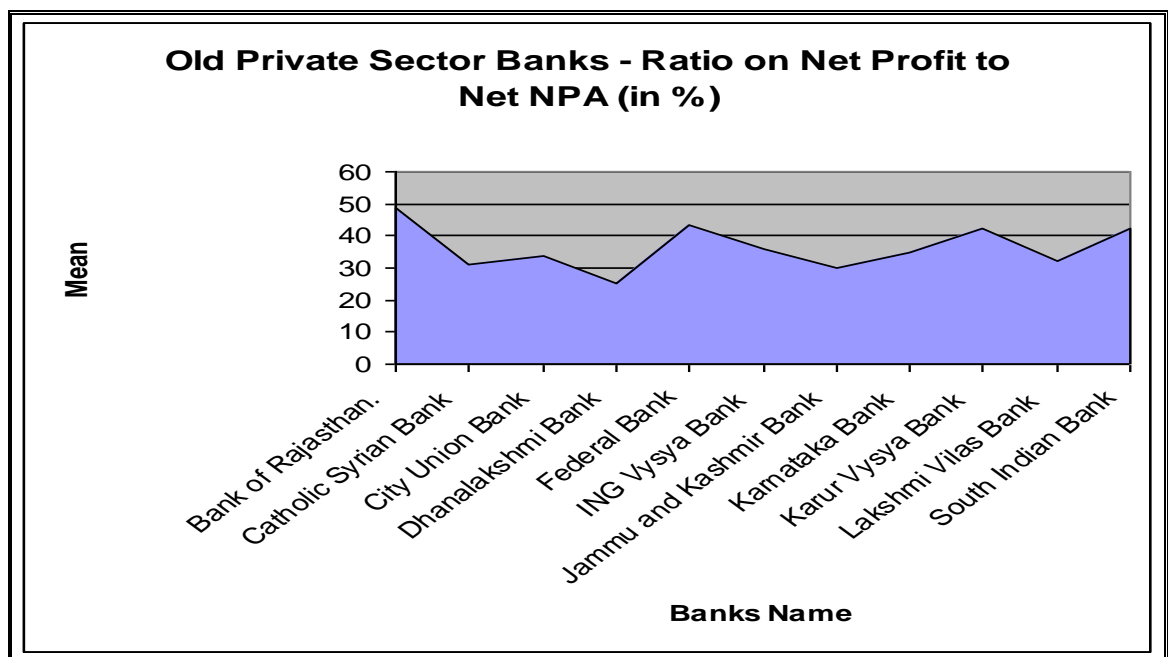**Chart – 2 New Private Sector Banks - Ratio on Net Profit to Net NPA**

Table 3: Old Private Sector Banks - Ratio on Net Profit to Net NPA (in %)

S.No	Banks Name	Mean	Standard Deviation	Co-efficient of variation
1	Bank of Rajasthan.	48.49	27.02	55.72
2	Catholic Syrian Bank	30.83	22.29	72.31
3	City Union Bank	33.80	17.44	51.61
4	Dhanalakshmi Bank	25.24	16.80	66.57
5	Federal Bank	43.47	24.23	55.74
6	ING Vysya Bank	35.94	28.80	80.15
7	Jammu and Kashmir Bank	29.93	23.69	79.13
8	Karnataka Bank	35.05	23.69	67.57
9	Karur Vysya Bank	42.32	33.98	80.29
10	Lakshmi Vilas Bank	32.01	20.26	63.30
11	South Indian Bank	42.18	38.67	91.68

The table 3 reveals that, the Net Profit to Net NPA Ratio across the various banks in Old Private Sector Banks for various years, the Mean ratio was minimum 25.24 percent for Dhanalakshmi Bank and maximum 48.49 percent Bank of Rajasthan. It is understood that Bank of Rajasthan has the best performance out of the eleven banks taken for the study. The standard deviation of Net Profit to Net NPA for selected banks ranges between 16.80 and 38.67 percent. The lowest standard deviation found in Dhanalakshmi Bank, which indicates low variation in the Net Profit to Net NPA and the high standard deviation found in South Indian Bank, it shows high variation in Net Profit to Net NPA. The co-efficient of variation ranges between 51.61 and 91.68 percent. Since minimum co-efficient of variation was for City Union Bank and this has more consistency in the performance over the study period of 10 years, compared to old Private Sector Banks.

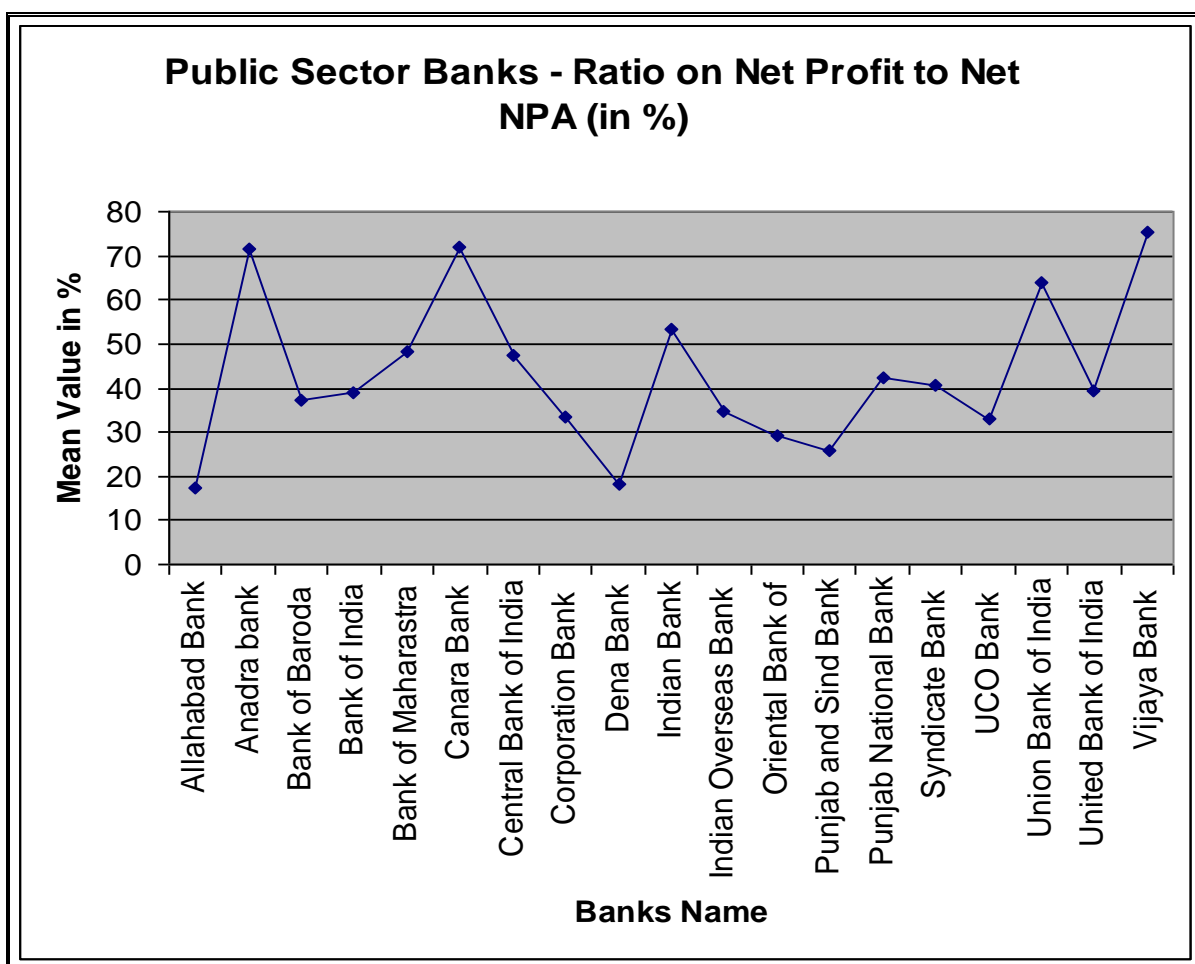**Chart – 3 Old Private Sector Banks - Ratio on Net Profit to Net NPA**

Table 4: Public Banks - Ratio on Net Profit to Net NPA (in %)

S.No	Banks Name	Mean	Standard Deviation	Co-efficient of variation
1	Allahabad Bank	17.50	7.76	44.33
2	Anadra bank	71.73	38.32	53.43
3	Bank of Baroda	37.28	25.89	69.46
4	Bank of India	38.76	23.31	60.14
5	Bank of Maharastra	48.43	40.99	84.64
6	Canara Bank	71.80	58.48	81.45
7	Central Bank of India	47.44	9.28	19.56
8	Corporation Bank	33.60	19.73	58.72
9	Dena Bank	18.31	14.59	79.68
10	Indian Bank	53.21	45.53	85.58
11	Indian Overseas Bank	34.66	21.92	63.24
12	Oriental Bank of Commerce	29.09	20.92	71.94
13	Punjab and Sind Bank	25.64	24.03	93.71
14	Punjab National Bank	42.27	31.36	74.19
15	Syndicate Bank	40.75	61.20	150.17
16	UCO Bank	33.16	19.60	59.11
17	Union Bank of India	63.71	40.94	64.26
18	United Bank of India	39.29	28.12	71.58
19	Vijaya Bank	75.29	62.16	82.56

The table 4 describes that, the Net Profit to Net NPA Ratio across the various banks in Public Sector Banks for various years, the Mean ratio was minimum 17.50 percent for Allahabad Bank and maximum 75.29 percent Vijaya Bank. It is inferred that Vijaya Bank has the best performance out of nineteen banks taken for the study. The standard deviation of Net

Profit to Net NPA for selected banks ranges between 7.76 and 62.16 percent. The lowest standard deviation found in Allahabad Bank, which indicates low variation in the Net Profit to Net NPA and the high standard deviation found in Vijaya Bank. It shows high variation in Net Profit to Net NPA. The co-efficient of variation ranges between 19.56 and 150.17 percent. The minimum co-efficient of variation was for Central Bank of India, which shows that the Central Bank of India has more consistency in the performance over the study period of 10 years, compared to other Public Sector Banks.
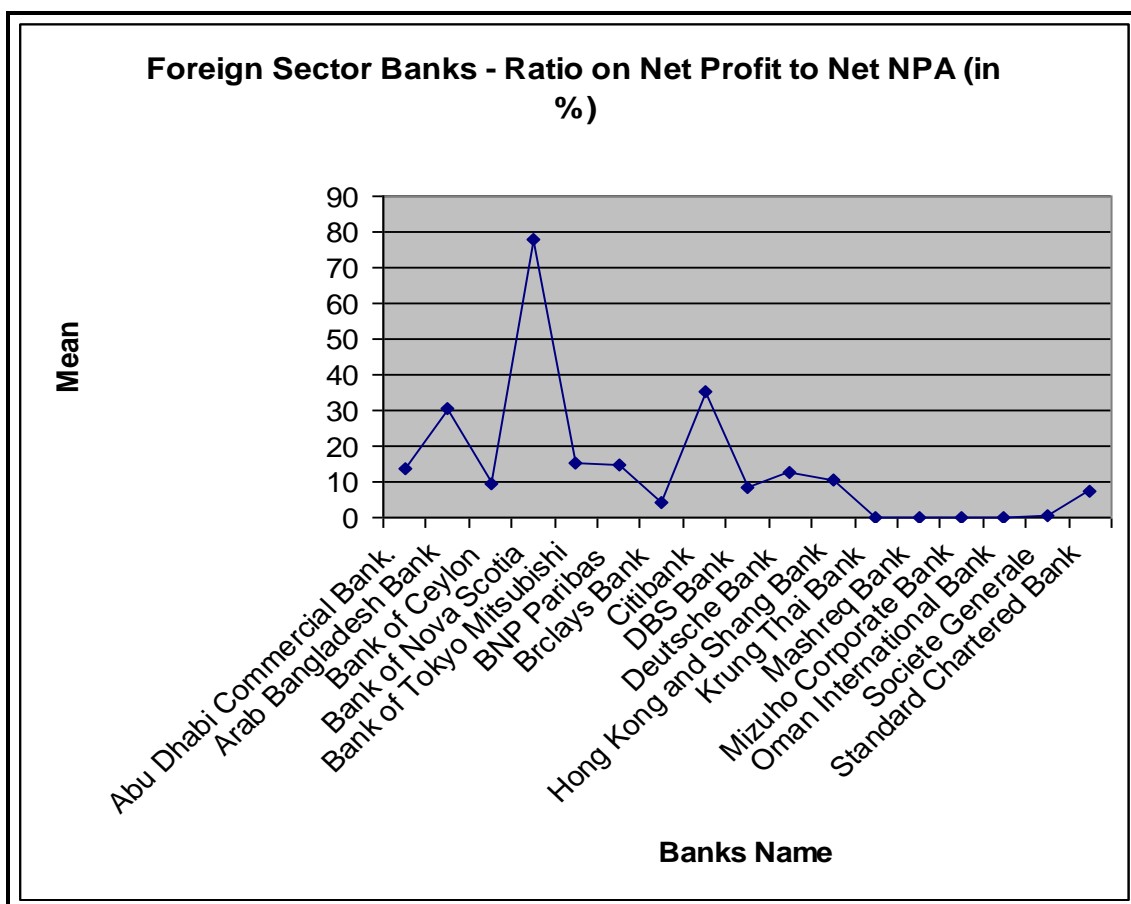
Chart – 4 Public Banks - Ratio on Net Profit to Net NPA

Table 5: Foreign Sector Banks - Ratio on Net Profit to Net NPA (in %)

S.No	Banks Name	Mean	Standard Deviation	Co-efficient of variation
1	Abu Dhabi Commercial Bank.	13.73	14.47	105.36
2	Arab Bangladesh Bank	30.43	36.15	118.79
3	Bank of Ceylon	9.43	13.01	137.94
4	Bank of Nova Scotia	77.87	7.79	11.34
5	Bank of Tokyo Mitsubishi	15.49	35.92	231.95
6	BNP Paribas	14.67	18.88	128.68
7	Brclays Bank	3.95	6.40	162.06
8	Citibank	35.47	69.67	196.39
9	DBS Bank	8.38	18.87	225.27
10	Deutsche Bank	12.44	21.31	171.36
11	Hong Kong and Shang Bank	10.27	22.83	222.24
12	Krung Thai Bank	0.00	0.00	0.00
13	Mashreq Bank	0.00	0.00	0.00
14	Mizuho Corporate Bank	0.00	0.00	0.00
15	Oman International Bank	0.00	0.00	0.00
16	Societe Generale	0.64	2.03	316.23
17	Standard Chartered Bank	7.12	22.52	316.23

The table 5 clearly identifies that, the Net Profit to Net NPA Ratio across the various banks in Foreign Sector Banks for various years, Mean ratio was minimum 0.64 percent for Societe Generale and maximum 77.87 percent for Bank of Nova Scotia. It is observed that Bank of Nova Scotia has the best performance out of seventeen banks taken for the study. The standard deviation of Net Profit to Net NPA for selected banks ranges between 2.03 and 69.67 percent. The lowest standard deviation found in Societe Generale, which indicates low variation in the Net Profit to Net NPA and the high standard deviation found in Citibank. It

shows high variation in the Net Profit to Net NPA. The co-efficient of variation ranges between 11.34 and 316.23 percent. The minimum co-efficient of variation was for Bank of Nova Scotia, and this bank has more consistency in the performance over the study period of 10 years, compared to other Foreign Banks.

Chart – 5 -Foreign Sector Banks - Ratio on Net Profit to Net NPA

Table 6: Comparison between all Sectors Ratio on Net Profit to Net NPA (in %)

Banking Sector	Ratio
Foreign Sector	14.11
New Private Sector	77.33
Old Private Sector	36.29
Public Sector	43.25
SBI Groups	677.97

The table 6 identifies that, the Mean Ratio ranges between minimum of 14.11 percent for Foreign Sector banks and maximum 677.97 percent for SBI Groups banks. The New Private Sector stood second in terms of Net Profit to Net NPA following Public Sector banks. It is observed that as far as Net Profit to Net NPA is concerned the best Performance was the SBI Group of banks followed by New Private Sector and Foreign Sector banks have the lowest performance.

Chart – 6 - Comparison between all Sectors - Net Profit to Net NPA
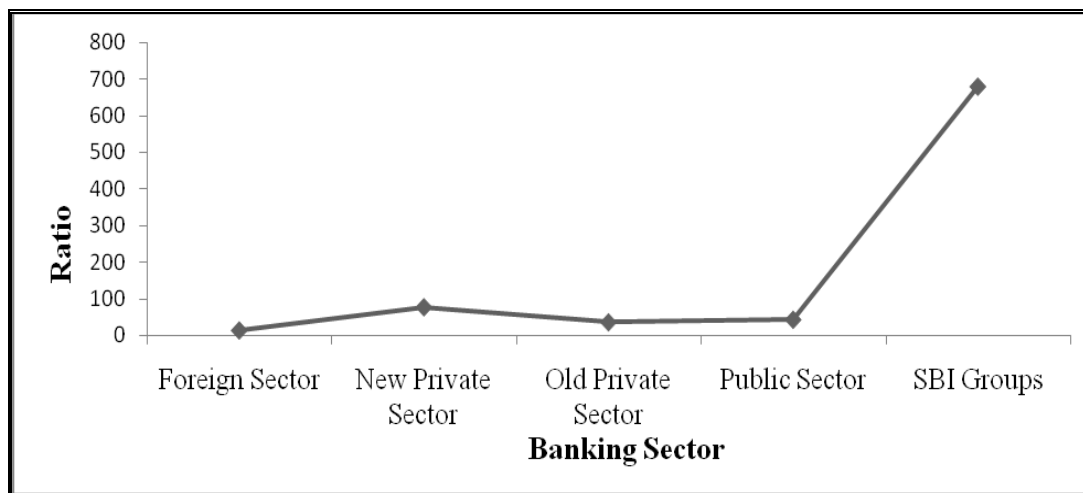
FINDINGS:

1. SBM (176.76) has the best performance out of the six banks taken for the study.

2. ICICI (152.19) Bank has the best performance out of the six banks taken for the study.

3. Bank of Rajasthan (48.49) has the best performance out of the eleven banks taken for the study.

4. Vijaya Bank (75.29) has the best performance out of the nineteen banks taken for the study.

5. Bank of Nova Scotia (77.87) has the best performance out of the seventeen banks taken for the study.

6. The New Private Sector stood second in terms of Net Profit to Net NPA following Public Sector banks. It is observed that as far as Net Profit to Net NPA is concerned the best Performance was the SBI Group of banks followed by New Private Sector and Foreign Sector banks have the lowest performance.

SUGGESTIONS

➢ Banks are strengthening the legal system

➢ Banks may consider providing services of trained legal officers at controlling/branch levels, depending upon the quantum of NPA.

➢ Banks are to engage services of dynamic lawyers to have desired momentum in follow-up of suit-filed cases for timely disposal and subsequent execution of decrees.

➢ NPA is requiring managerial efficiency on the part of banks and it is not only reducing the average level of net NPA but also to prevent the recurrence of this problem by ensuring addition to fresh NPA to bare minimum.

➢ There is need for continuous improvement in asset quality by strengthening skill at the grass root level, adopting regular inter- face with borrowers, ascertaining periodical operating performance of the firm etc.

➢ Set up Credit Risk Evaluation Systems.

➢ Adopt Sound Risk Management System.

CONCLUSION

The NPA is very important in all banking sectors. The banks very careful to deal with NPA, which bank is to reduce to NPA that bank are having good financial systems. The banks are following very rigid control system in NPA management.

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RESEARCH OF REGION

IMPACT OF CRUDE OIL AND GOLD PRICES ON WPI- A TIME SERIES ANALYSIS PERSPECTIVE

Dr. Anant Deshmukh*

ABSTRACT

As observed Gold & Crude oil have the great impact on Indian Economy. Gold is perceived as the safest investment avenue by the investors and the amount of foreign exchange spent on buying crude oil has significant component in India's Balance of Payment. Researcher in this research tried to study the impact of prices of these two commodities over WPI with the help of Time Series Analysis and Regression Analysis. The research conducted will prove helpful in understanding several Time Series concepts like Stationarity of the data series' and Augmented Dickey Fuller Test, and Spurious Regression. A regression analysis is run on Wholesale Price Index (WPI) as dependent variable to check the impact of Gold prices and Crude Oil prices on it. The ADF test conducted on the data of prices shows the stationarity of data at first level difference. The value R square found in regression analysis makes us conclude that the price of two variables has significant impact on the movement on WPI.

KEY WORDS: *Stationarity of Data, Spurious Regression, ADF, Regression Analysis, WPI.*
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INTRODUCTION

Gold as they say is the best hedge against inflation. Especially in the Indian context, it has tremendous aspirational value. Indians have unique and diverse use for gold – wedding rituals, families' store of wealth, investments and several others. Gold has immense value from religious, social, economical aspects. It is a tool for wealth creation, ornaments and financial securities. In India, the demand for gold is much more than many developed and developing countries. Gold is effective instrument to use as hedging against Inflation. The correlation between gold prices and inflation during the period 1979-1999 was -0.13658. Not only in India but also in many other countries also gold is treated as a very important

commodity for an evidence IMF provides information as about 58% of the countries hold gold as a reserve.

Crude on the other hand is very basic to the needs of a fast emerging economy that India is. Given the strong GDP numbers that the Indian economy has been posting year on year for the past few years; crude oil has become an indispensable source of energy. Not surprisingly the amount of foreign exchange that we spend on crude is the highest component in India's Balance of Payment. India imports 70% of its crude oil requirement fro OPEC countries, hence the oil price fluctuations affects the economy for evidence we can see the oil shocks faced by India in the past. The mode of payment is in the foreign currency, hence the fluctuation in the value of the rupee cause the effect in the price of the oil. The reserve Bank Of India had reportedly estimated that one dollar rise in the international price per barrel of crude oil adds 600 million dollars to the countries oil import bill.

As it is known that both Gold and Crude Oil are the commodities which affect the Indian economy in considerable proportion. This paper aims to study the relationship between gold prices and crude oil prices and its impact on WPI.

REVIEW OF EXISTING LITERATURE

Sr. no	Year of study	Author of study	Conclusion of study
1	1972	Ridler & Yandle	It was the first analysis on the effect of exchange rate volatilities on commodity price. It was started with the finding an equilibrium situation between the world demand for imports and world supply of exports. The demand of import bill considered only world price of the importer's currency.
2	1980	Feldstein	The study showed that a rise in expected inflation will increase the relative price of gold.
3	1982	Chua and Woodward	The study provided empirical evidence that, for US investors, gold is an effective hedge against both expected and unexpected inflation.
4	1996	Sjaastad &	Studied that floating exchange rate among the major

		Scacciavillani	currencies have been a major source of price instability in the world gold market. But their focus was on the appreciation or depreciation of European currencies and its effect on the price of gold in other countries.
5	1996	Ganesh Mani & Srivyal Vuyyuri	In their study "Exchange of US Dollar With Indian Rupee" came up with an empirical finding that the exchange rate has attained significance at 5% level of significance and has a favourable effect on price of gold.
6	2001	Cai et al	It studied macroeconomic announcement in US and its impact on gold prices
7	2011	Divyang Joshi	It studied the relationship between Exchange rate volatility and relationship between price of crude oil and gold.

STATEMENT OF PROBLEM

Inflation which is reflected in the Wholesale Price Index is the cause of concern as it is increasing over a period of time. Gold is the most preferable commodity to invest by Indian investors and Crude oil wherein by compulsion economy has to invest the available funds. Hence the attempt is made to understand the correlation between the price trends of these two commodities, and its individual impact on WPI.

NEED OF THE STUDY

Many studies have been done on the fluctuation of currencies and its impact on Gold or Crude oil prices but a very few studies have been done to find out the relationship between the prices of these two commodities. The study is needed to know the exact relationship between Gold and Crude oil prices, as it will help in the predictions of prices of one or the other commodity. The predictions if turned true will set up the benchmark to find out the avenues of investment. The present study considers the weekly prices of Gold and Crude oil price to find out the relation between them.

OBJECTIVES

1. To find out the relationship between the prices of Gold and Crude oil prices
2. To find out the impact of the Gold prices on Crude oil prices.
3. To find out the trend of prices of Gold over the period of study.
4. To find out the trend of prices of Crude Oil over the period of study.
5. To find out the impact of Crude oil prices and Gold prices on WPI.

RESEARCH METHOD

This study examines the relationship between two different variables i.e. Prices of Gold and Prices of Crude oil over a specified time period. The relationship between the two variables is important as these two commodities are of international concern. Before finding out the relationship between two variables the significant thing is to find out that the data series is stationary or not. For finding out the stationarity of the data series Augmented Dicky Fuller unit root test was used. After making the series stationary correlation and regression analysis was used to find out the relationship between these two variables.

SIGNIFICANCE OF STATIONARITY OF SERIES

For feasibility of inference and forecasting of a time series it is required to be stationary. A stationary time series will tend to return to its mean and fluctuations around this mean will have broadly constant amplitude. Therefore, we can have a reliable prediction about its future behavior. On the other hand we cannot make any such prediction about the behavior of a non stationary time series which have time varying mean or variance. If we study a non-stationary series for a specific time period, any statistic obtained on its basis is applicable for that particular period of time only and it cannot be generalized.

If a time series is non stationary, we can study its behaviour only for the time period under consideration. Each set of time series data will, therefore be for a particular episode. As a consequence, it is not possible to generalize it for the other time period. Therefore, for the purpose of forecasting, such (non-stationary) time series may be of little practical value.

SAMPLE SIZE

The sample size consists of data of weekly prices of the gold and crude oil prices over the period of 10 years starting from January 2001 till Dec 2011. The data collection is of secondary type wherein the data is collected from the relevant financial websites. The data were collected and was set up into hypothesis form to find out whether there is any correlation between gold prices and crude oil prices. The data consists of 520 weekly closing prices of gold and crude oil price. The data is tabulated to find out the stationarity of the data series and to find out the correlation between gold prices and crude oil prices. Before finding out the correlation between the prices of gold and crude oil it is very much necessary to find out the stationarity of the data series under study for the reason that if the data series is not stationary the statistics in relation to correlation of the data may not be authentic, hence for finding the stationarity ADF test is used and Correlation is used to find out the relationship between the variables.

Augmented Dickey Fuller (ADF) Test

In the auto regressive time series models, the presence of unit root causes violation of the assumptions of linear regression. The presence of unit root means that time series is not stationary, and if such a non stationary time series data is used in that case there may be significant relationships from unrelated variables. This condition is also called as Spurious Regression.

Spurious Regression

When a non-stationary time series is regressed to other non-stationary time series, we often get highly significant fit, although the real relationship between those variables may not be present. Statistically, the regression coefficient (b) converse to its true value zero between two pure random walk process (without drift), but its estimated standard error is biased downward. In simple term, we get a correct b coefficient but a wrong t-ratio in a regression between two random walk processes. The symptoms of spurious regression are:

- High R^2 and low Durbin–Watson d
- $R^2 > d$
- The residuals from the regression are also non-stationary.

Identifying a Non-Stationary Time Series

The non-stationarity of the time series can be identified through:

a) <u>Time series plot</u>

A stationary process will move around a constant mean or a deterministic trend. A non stationary series will wild fluctuations.

b) <u>Correlogram</u>

The non-stationary series will show very high autocorrelation close to 1; which, unlike a true AR process, does not show an exponential decay.

c) <u>Formal Tests of Unit Root</u>

If the Process is Non-Stationary:

No econometric model, expect the co integration regression, can be constricted using non stationary time series. Therefore, the series is required to be transformed to get a stationary series. If trend element is present in the series, it should be de-trended using a suitable trend regression. Again examine the detrended series for stationarity.

Regression Analysis and Correlation Coefficients

This research is done with the help of descriptive analysis and correlation coefficients. Regression analysis is a statistical tool by which relationship between two variables can be found out wherein the two variables are, dependent variable whose value is to be found out and independent or explanatory variable about which the information is available. Regression analysis is normally used to understand the statistical dependence of one variable on another. The regression coefficient can show the extent of proportion of variance between variables is due to the dependant variable and the extent of proportion of variance between variables is due to the independent variable.

HYPOTHESIS

H0 1- The data series for crude oil is non- stationary/ The data series has a unit root.

H0 2- The data series for gold price is non- stationary/ The data series has a unit root.

H0 3- There is a no significant correlation between Gold and Crude Oil prices.
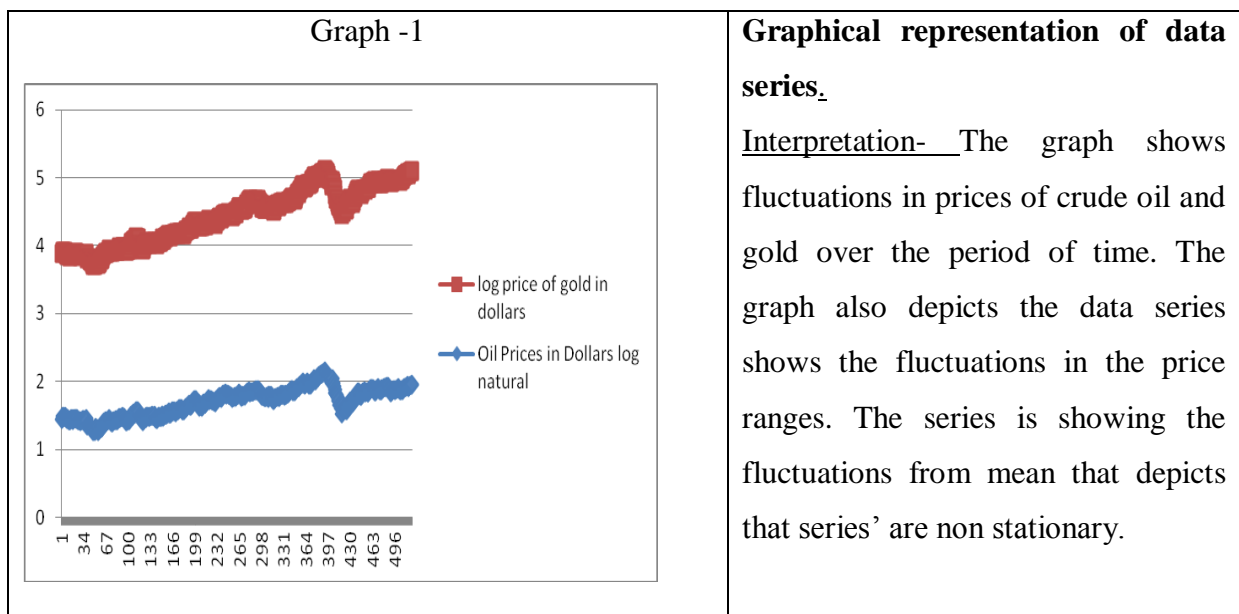
H0 4- Crude oil and gold prices significantly explains the movements in WPI
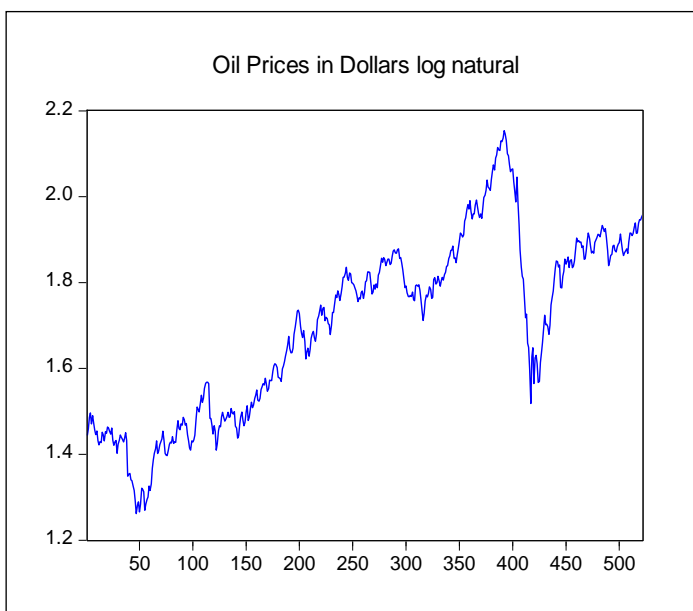
DATA ANALYSIS

The data for conducting the study is collected over the period of 10 years; the data is collected from 1st January 2001 till 31st December 2010. In nutshell data is collected for 10 years i.e., for 520 weeks. The data is collected from websites of World Gold Council (www.gold.org) and www.RWTC.com {Weekly Cushing, OK WTI Spot Price FOB (Dollars per Barrel)}.

Tools Used for study are E-views Software (ADF Test), SPSS Software and Microsoft Excel- 2007.

DATA ANALYSIS AND FINDINGS

Graph -1	**Graphical representation of data series**.
	Interpretation- The graph shows fluctuations in prices of crude oil and gold over the period of time. The graph also depicts the data series shows the fluctuations in the price ranges. The series is showing the fluctuations from mean that depicts that series' are non stationary.

Stationarity of The data series for Crude Oil Prices.

Interpretation- The graph shows that the series is showing fluctuations from the mean and the shock are not easily dying down wherein the series is non stationary.

Graph -2

RESULT TABLE-1
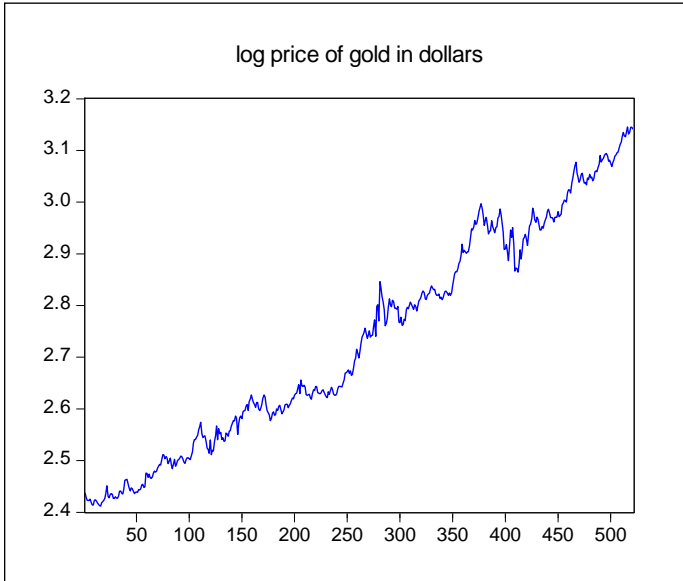
Null Hypothesis: OIL_PRICES_IN_DOLLARS_LO has a unit root

Exogenous: Constant

Lag Length: 3 (Automatic based on SIC, MAXLAG=18)

Augmented Dickey-Fuller test statistic		t-statistics	Prob.*
		1.211906	0.6708
	1% level	3.442746	
Test critical values:	5% level	2.866900	
	10% level	2.569686	

Interpretation- The Augmented Dickey- Fuller test is conducted to test the stationarity of the data series and the null hypothesis here is the "The data has a unit root" whereas the probability is 0.6708 which means the hypothesis is accepted wherein the process is non stationary. This data as such can not be used to test the correlation because the series itself may result into spurious regression and for the same not to occur, the data series need to be made stationary. The data can be made stationary by testing the data on the First level difference with Intercepts only; the ADF can again be done for that.

RESULT TABLE- 2

NullHypothesis

D(OIL_PRICES_IN_DOLLARS_LO) has a unit root

Exogenous: Constant

Lag Length: 2 (Automatic based on SIC, MAXLAG=18)

Augmented Dickey-Fuller test statistic		t-Statistic	Prob.*
		-11.21446	0.0000
Test critical values:	1% level	-3.442746	
	5% level	-2.866900	
	10% level	-2.569686	

*MacKinnon (1996) one-sided p-values.

Interpretation- The table above depicts the test when performed with First level difference with Intercepts only; the probability is 0.000 wherein the researcher can reject the hypothesis that the data series has a unit root, which shows the absence of unit root. The absence of unit root itself states the data series is stationary. Such stationary series can be used to test the correlation with another series. ADF test performed here has 18 lags with Schwartz criterion.

Graph-3

log price of gold in dollars

Stationarity of The data series for Gold Prices.

Interpretation-The graph depicts the prices of gold in dollars over the period considered for study, data series shows numerous fluctuations in the price of gold over a period of time considered for the study. The fluctuations are not dying down easily and the process does not show the presence of stationarity.

RESULT TABLE-3

NullHypothesis:

Interpretation- The Augmented Dickey- Fuller test is conducted to test the stationarity of the data series

LOG_PRICE_OF_GOLD_IN_DOL has a unit root			
Exogenous: Constant			
Lag Length: 0 (Automatic based on SIC, MAXLAG=18)			
Augmented Dickey-Fuller test statistic		t-Statistic	Prob.*
		0.137204	0.9682
Test critical values:	1% level	-3.442673	
	5% level	-2.866868	
	10% level	-2.569669	
*MacKinnon (1996) one-sided p-values.			

and the null hypothesis here is the "The data has a unit root" whereas the probability is for the same hypothesis when ADF is conducted is 0.9682, which means the hypothesis is accepted wherein the process is non stationary. This data as such cannot be used to test the correlation because the series itself may result into spurious regression and for the same not to occur, the data series need to be made stationary. The data can be made stationary by testing the data on the First level difference with Intercepts only; the ADF can again be done for that.

RESULT TABLE-4			
NullHypothesis: D(LOG_PRICE_OF_GOLD_IN_DOL) has a unit root			
Exogenous: Constant			
Lag Length: 4 (Automatic based on SIC, MAXLAG=18)			
Augmented Dickey-Fuller test statistic		t-Statistic	Prob.*
		-12.36018	0.0000
Test critical values:	1% level	-3.442795	
	5% level	-2.866922	
	10% level	-2.569697	
*MacKinnon (1996) one-sided p-values.			

Interpretation- The table above depicts the test when performed with First level difference with Intercepts only; the probability is 0.000 wherein the hypothesis can be rejected, that data series has a unit root, which shows the absence of unit root. The absence of unit root itself states the data series is stationary. Stationary series can be used to test the correlation with another series. ADF test performed here has an 18 lags with Schwartz criterion.

RESULT TABLE-5 (Correlation Analysis for Gold prices and oil prices.)			
		log price of gold in dollars	Log price oil in dollars
log price of gold in dollars	Pearson Correlation	1.000	.852
	Sig. (2-tailed)	.	.000
	N	1043	522
Log price oil	Pearson Correlation	.852	1.000
	Sig. (2-tailed)	.000	.
	N	522	522

Correlation Analysis for Gold prices and oil prices.

Interpretation-

The result table which is to be interpreted here is prepared by using SPSS software, the resultant table is the result of the correlation test conducted with the aid of the above said software. The test of correlation is carried to check whether there is any correlation between crude oil price and gold price. The data series considered is of 10 years duration, the data initially was not stationary, and then the data was made stationary by using Augmented Dickey Fuller test with first difference level with intercept and lag structure containing 18 lags. The data as became stationary was used to test the correlation of the data series with the help of SPSS software. The significance value comes out to be 0.00 wherein we have to reject the null hypothesis that is 'There is no significant correlation between Gold price and Crude Oil Price' alternatively we accept, ' There is significant correlation between price of two variables', which can be confirmed from the Pearson Correlation value which is 0.852

RESULT TABLE- 6 (Regression of WPI on Crude oil price)					
SUMMARY OUTPUT					
Regression Statistics					
Multiple R	0.805930944				
R Square	0.649524686				
Adjusted R Square	0.561905858				

Standard Error	20.5925172				
Observations	6				
ANOVA	*df*	*SS*	*MS*	*F*	*Significance F*
Regression	1	3143.52627	3143.526274	7.41307202	0.05283960
Residual	4	1696.20705	424.0517648		
Total	5	4839.73333			

Regression of WPI on Crude oil price

Interpretation-

The regression analysis conducted above shows the regression of Wholesale price index on Crude oil prices. R Square comes out to 64.95 % which is approximately equals to be 65 %, which depicts that there is considerable impact caused on WPI by Crude oil prices. Around 35% impact can be attributed to other macro-economic variables. In addition to that F value is 7.413 which signify the regression model is a good fit.

RESULT TABLE-7 (Regression of WPI on Gold Prices**.**)					
SUMMARY OUTPUT- Regression Statistics					
Multiple R	0.970529087				
R Square	0.941926708				
Adjusted R Square	0.927408385				
Standard Error	8.382410831				
Observations	6				
ANOVA	*df*	*SS*	*MS*	*F*	*Significance F*
Regression	1	4558.674	4558.674	64.878479	0.00129
Residual	4	281.0592	70.26481		
Total	5	4839.733			

Regression of WPI on Gold Prices.

Interpretation-

The regression analysis conducted above shows the regression of Wholesale price index on Gold Prices. R Square comes out to 94.19% which is approximately equals to be 94%, which depicts that there is considerable impact caused on WPI by Gold Prices. The 'F' value comes out to 64.8784 which indicate the fact that the regression model is a good fit.

CONCLUSION

1. The weekly data of Crude oil price & Gold price for 10 years is found to be significantly positively correlated to each other.

2. Prices show the fluctuations and the shock in the prices does not die down at a shorter period.

3. Regression analysis carried suggests that these two commodities independently explain movements in the WPI.

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BOOK REVIEW

Prof. Abhijeet S. Kelkar*

Book : **100 MANAGERS IN ACTION**

Author : T.V. Rao with assistance from Charu Sharma

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Writing style of book brings with it, the vision, values, foresight, execution and delivery of results that make a person successful leader and manager.

Author commences Preface with his observation, "Indians do not recognize greatness in their fellow citizens until they are recognized by others outside India – ghar ki murgi dal barabar!" To support his observation, he gives a real situation when many of his colleagues in IIMs were sent to Harvard in sixties and seventies to do their doctoral research. Many of them returned back and started professing the management to the students of IIMs and stayed there only. Perhaps they were less known to the rest of the world but remained in the best memories of the students whom they taught. A few continued to work abroad and perhaps were more known to the world at large and even recognized as Management Gurus also. However, the success stories of corporate leaders and managers forced their frequent visits to India and perhaps their more and more value addition was in India only.

The central theme of the book remains that the Managers are not inherently born but can be developed. To quote, authors give various examples of the successful corporate managers and leaders like N.R. Narayanmurthy, Kumar Mangalam Birla, Kiran Mazumdar Shah, Deepak Parekh, Verghese Kurien, Amrita Patel, Anu Aga, Azim Premji, Kishore Biyani, L.N. Mittal, Nandan Nilekani and so on. Author says that all of them were ordinary people at one point of time but have grown over a period of time. Known leaders have been known in the recent times as a considerable amount of literature is being published on them. Efforts initiated by Udai Pareek in mid 90s through the book 'Beyond Management' were taken ahead by the others like Preetam Singh who wrote on transformational leaders in India. Even less known

entrepreneurs have been popularized through the books written in the recent past like 'Stay hungry, stay foolish' and 'Connecting the Dots' by Rashmi Bansal. Amongst the others who have documented the leaders and their roles are S.N. Chary, Sriniwasa Pandit etc. All of them got the help of circumstances around them to nurture their internal talent and convert it into a success. Also, most of them have made difference by making other do a lot more than what they were doing actually at that part of time. Their behaviors, actions and stimulations helped them to remain distinguished from the others.

Book is a collection case studies of 100 Managers from 8000 odd profiles chosen from200 Organizations in the database of the author. Thereafter, a tool of 360 Degree Feedback was applied on 100 managers. Take away facets from each manager along with the commonalities detected have emerged from this book. The morale of the story remains "Managers do not do different things but do the things differently." Through the analysis of 100 managers across the business vertical, readers take away the note that even ordinary people can do the things differently and emerge as leaders in their organizations. Major facets of the corporate leader / manager remain as under:

a) Domain knowledge and technical know- how
b) Results and action orientation
c) Interpersonal skills
d) Team work
e) Systematic thinking
f) Continuous learning

360 Degree Feedback is especially chosen by the author as it is more scientific way of measuring the managerial impact made by managers based on the ratings by seniors, juniors, from the front and behind colleagues in addition to the self-made rating. The model used by author is RSDQ (Roles, Styles, Delegation & Qualities). This is done especially with regard to the managerial and leadership competencies in top and senior managements in India. The cut- off point fixed was 70%. In the sense, those who scored 70% or above were on Managerial Roles Tool were selected as emerged managers having good managerial impact. Thereafter 360 Degree Feedback is taken for these managers. However, the data are not merely the collection of 360 Degree Feedbacks of the managers but more than that, the success stories of these managers in their own words merely supported by 360 Feedback Tool to validate and add some value, if any.

The book is divided into 11 chapters presenting either of the dimensions used in RSDQ Model questionnaire. Author has made it clear that the case studies and names appearing in one chapter does in no sense mean that the managers are not able to find space in the other chapter. However, relatively he/she holds a position strongly in a particular dimension and hence name is included. Every candidate depicting his / her case study and exposed to 360 Degree Feedback belongs to different organizations and has a long career. Hence, the qualities are more reflections of individuals rather than organizations.

There are 41 organizations getting reflected through the exercise. To quote a few, AdityaBirla Minacs, Aditya BirlaNuvo, Adani Group, Bharat Electronics Limited, Fortis Mulund Hospital, Idea Cellular Limited, Godfrey Philips India Limited, Jindal Steel and Power India Limited, Titan Industries Limited, Pfizer Limited, Novartis, Mamata Group etc. 11 Chapters representing the different dimensions remain as:

1. Vision & Values and Long Term Goals
2. Balancing of long term thinking and short term goals
3. Technological and Systems leadership
4. Inspiring, Developing and managing subordinate employees
5. Team work, Team Building and Team Leadership
6. Developing and Managing the Culture
7. Managing / leading the Internal Customers /Colleagues
8. Influencing and Managing the Boss and Seniors
9. External Customer Management
10. Leadership Styles, Delegation and Qualities of Managers
11. Lessons from 100 Managers

'1' comprises of various illustrations of the use of respective dimensions by the corporate sector and quotes by various authors in their literature published. Warren Bennis and Nonus opine that in order to provide direction to an organization, a leader must first develop a mental image if possible and desirable future state of an organization. Even jack Welch of GE believed that the role of the leader was to create vision, articulate it, own it passionately and drive it towards implementation. He also believed that the numbers are not vision but the product. Sam Walton, CEO of Wal-Mart knew that the key to the company's future was

never to break with the company's guiding principle of low prices. Walt Disney also understood the importance of Vision and Values. There are also a few instances of Melvin Goodes, CEO of Warner – Lambert Company, Tatas, Azim Premji of Wipro and TVS Group.

'2' starts as an extension of 1 as strategies plans and goals are translations of Vision and Values. Stephen Covey in his book 7 Habits of highly effective people puts Habit no.2 to begin with the end. Nanus and Stephen M Dobbs in their book 'Leaders who make a difference' say that leaders are the Ones who decide when a new strategy is needed. Philip Sadler in his book Leadership has also mentioned that CEOs in the strategy approach concentrated on creating and implementing the firm's long term strategy, spending the greater part of their time dealing with the issues outside the firm such as competitors, customers, market trends and technological developments.

'3' mentions the importance of technology since beginning of the 19th Century which put the Developed nations in the forefront. Those who had invested in the technology as well as those who had an access to the technology had upper hand. John Zengar and Joseph Folkman in their 'Extra Ordinary Leader' have found that in technology organizations leader need to be highly knowledgeable and viewed as having technical expertise in the core activity of the firm. Even Bill Gates has quoted "Make sure that every report and every other vital document generated by the company is available in digital format. Your corporate memory is not really good unless and until anybody who sits on systems can get the required data within a time not more than 60 seconds." It is not merely important to be technologically equipped but it is equally important to develop technological sensitivity in the juniors as well.

'4' states that it is very important for the leaders as well as managers to motivate and inspire the people who work under and for them. Its known fact that competent and motivated staff makes many things happen. Robin Sharma in his book 'Monk who sold his Ferrari' has outlined the qualities like purpose of the work, connect with the followers, liberating human talent and manifestation of the talent of the people. Larry Bossidy, a former CEO of Honeywell and former vice president of GE has quoted "You will never remember when you retire what you did in the first quarter of 1994 or the third. What you will remember is, how many people you developed, how many people you helped to have development. When confused as to how you are doing as a leader, find out how the people you lead are doing. You will know the answer"

'5'explains the role of culture building in an organization. Pareek has quoted in a research study carried out by him that culture provides a strong rim for fast moving wheel that keeps several factors integrated and acts as a binding force to manage the difficult terrain. Herb Kelleher of Southwest Airlines mentions that culture means taking care of the people on whom the business depends every day. In Indian scenario, Venu Shriniwasan has been able to develop a strong culture by relentlessly emphasizing the quality culture.

'6' concentrates on Team Work and Team Building. Burt Nanus and Stephen Dobbs in their book 'Leaders who make a difference' say that strong leaders make strong teams. Fine art of Team Building requires selecting right people with the right skills, positioning them so that they can make the greatest contributions. Jack Welch always believed that middle level managers have always to be team members and coaches. Even Narayan Murthy says it is important that you have a strong team for the entrepreneurial experiment to succeed.

'7' comes as an extension of 6. Teamwork includes two aspects. First is to develop and manage one's own team including largely juniors or direct reportees. Second includes being a team player including cooperating and collaborating with the team. Internal customer is a technical term used in management sciences and popularized by Joseph Juran.

'8' deals with a crucial factor of liaison with boss and top management. Managers should realize how much their bosses depend upon them. Gobarro and Kotter in a classic article on 'Managing your boss' highlight the extent to which success depends upon understanding and managing one's boss. Paul Lovett in an article 'Getting plans approved by the boss' outlines the following characteristics of a plan that gets approved

'9' deals with the concepts of external customer relations and client management. Organizations exist for serving the people in some form or the other. Customers occupy primary place in the organizations among its various stakeholders. Peters and Waterman observed that many of the innovative companies got their product ideas from their customers. Sam Walton, CEO of Wal-Mart says that there is only one boss and that is customer. Sir Colin Marshall of British Airways says that if those of us who head companies don't keep our customers in sight and earshot all the time, we deserve to be passed over.

'10' contains the Leadership Styles. While good managers perform a variety of tasks and perform them well, their influence on others is determined not merely on what they do but it also depends on partially and significantly on the way they do it. Jack Welch is stated to encourage subordinates to use mistakes as learning opportunities. Discussion with them educates them and makes them more competent. Andy Grove, CEO Intel felt in order to prepare the organization for a massive change you must instill a culture that despises complacency. Narayana Murthy also followed developmental style of leadership with full belief in empowering subordinates and letting them take decisions on their own.

'11' appears as a gist of all the already covered dimensions as it depicts commonalities and major dimensions which are quoted by the 100 managers in action. They get validated through 360 Degree Feedback tools applied on them. The lessons which are emerged to have good impact making manager are as under:

a) They are hardcore networkers
b) They are great learners
c) They are achievement driven and focus on building achievement
d) They want to live many lives
e) They are perseverant
f) They exhibit leadership skills early
g) They are self-motivated
h) They are highly self-aware
i) They are open
j) They build on strengths
k) They follow up with the outside world
l) They have family support

OBSERVED LIMITATIONS IN REVIEWER'S OPINION

The book undoubtedly remains to be the real guide for sharing the experiences of 100 managers. Every employee in an organization should read the same and get some real value added. However, in reviewer's opinion, it is subject to a few limitations which are as under:

➢ The case studies covered as well as the other information in support of the specific dimension are considerable in numbers. However, factors like questionnaires, detailing of the relative scaling of the performance of the interviewees could have been explained in more detailed manner.

➢ The respondents covered have a very long career and many of them have worked in different organizations in different designations. The impacting and influencing capacity of owner – manager and the same of employee – manager is measured on the same scale.

➢ Considerable amount of success stories or positive impacting is shared in the book. It should have also given a thought to share a few negative impacts created.

➢ Application of knowledge and theory base into practice depends upon the circumstances and situations prevailing in the particular organization. As a result, the opinions expressed as well as experience shared by the respondents need not necessarily represent the dimension under consideration.

AUTHORS'BACKGROUND

Prof. T.V.Rao is a Chairman of in T.V. Rao Learning Systems Pvt. Ltd. (TVRLS), a consulting firm in the field of Management. He is an author of over 50 books in the areas of HRD, Education, Entrepreneurship, Health, Population and Management Training. He was also a full time faculty member at IIM, Ahmadabad. During his tenure he initiated a methodology to develop leadership competencies which subsequently being called as a 360 Degree Feedback. Currently, he is an adjunct Professor at IIM-A.

Mr. Charu Sharma is as Associate Consultant at TVRLS and has assisted Prof. Rao in writing this book.

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